Ivanpah Energy Center

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Environmental Impact Statement

Volume 2






Prepared for

Lead Agency
U.S. Department of the Interior
Bureau of Land Management
Las Vegas Field Office

Cooperating Agency
U.S. Department of Energy
Western Area Power Administration
DOE/EIS-0354

On behalf of

Ivanpah Energy Center, LP
a Diamond Generating Corporation Company
Los Angeles, California

Submitted by

PARSONS

November 2002

TD
195
.E4
I86
2002
v.2

DES 02-45

#51182982 ID: 88056957

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.E4
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DRAFT

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On Behalf Of:

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A Diamond Generating Corporation Company
Los Angeles, California

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Submitted By:

PARSONS

NOVEMBER 2002

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N-75474	N-75471	N-75477
N-75895	N-75472	N-75493

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APPENDIX A

APPENDIX A

APPENDIX A
LEGAL DESCRIPTIONS OF PROPOSED ROW AUTHORIZATIONS

LEGAL DESCRIPTION

Transmission Line Legal Description for the Linear Right-of-Way.

STATE	BASELINE	TWP	RNG	SEC	Division
Nevada	Mt. Diablo	24 S	58 E	34	SE4NE4, NE4SE4;
				35	SW4NW4, NW4SW4, S2SW4.
		25 S	58 E	1	SE4NE4, NW4SW4, S2SW4, N2SE4, S2SE4;
				2	NW4NE4, S2NE4, E2NW4, N2SE4, SE4SE4;
				12	NW4NE4, S2NE4, N2NW4, N2SE4, SE4SE4.
		25 S	5 9 E	6	NW4SW4, SW4SW4;
				7	S2SW4;
				17	NW4SW4, S2SW4;
				18	SW4NE4, N2NW4, SE4NW4, N2SE4, SE4SE4;
				20	NW4NW4, NE4NW4, NW4NE4, SW4NE4, SE4NE4, NE4SE4;
				21	SW4NW4, NW4SW4, NE4SW4, SW4SW4, SE4SW4, SW4SE4;
				26	SW4NW4, SE4NW4, NW4SW4, NE4SW4, SW4NE4, NW4SE4, SW4SE4;
				27	NW4NW4, SW4NW4, SE4NW4, NW4SW4, SW4NE4, SE4NE4, NW4SE4, NE4SE4;
				28	NW4NE4, NE4NE4, SE4NE4;
				35	NW4NE4, SW4NE4, SE4NE4, NW4SE4, NE4SE4;
				36	NW4SW4, SW4SW4, SE4SW4, SW4SE4.
		26 S	59 E	1	NE4NW4, NW4NE4, NE4NE4, SE4NE4.
		26 S	60 E	4	SW4NW4, NW4NW4, NE4NW4, NW4NW4;
				5	SW4SW4, NW4SW4, NE4SW4, SE4NW4, NW4SE4, SW4NE4, SE4NE4;
				6	SW4NW4, SE4NW4, NE4SW4, NW4SE4, SW4SE4, NE4SE4, SE4SE4;
				24	SW4SE4, SE4SE4;
				25	SW4NW4, SE4NW4, NW4NW4, NE4NW4, NW4NE4, NE4NE4;
				26	SW4SW4, SE4SW4, NE4SW4, NW4SE4, NE4SE4, SE4NE4;
				27	SE4SE4;
				33	SW4SE4, SE4SE4, NE4SE4;
				34	NW4SW4, NE4SW4, SW4NW4, SE4NW4, SW4NE4, NW4NE4, NE4NE4;
				35	NW4NW4.
		25 S	61 E	19	SW4SW4, NW4SW4, NE4SW4, SE4NW4, NW4SE4, SW4NE4, SE4NE4;
				20	SW4NW4, NW4NW4, SE4NW4, NE4NW4, NW4NE4, NE4NE4;
				21	NW4NW4, NE4NW4, SE4NW4, SW4NE4, SE4NE4;
				22	SW4NW4, SE4NW4, NW4SW4, NE4SW4, SW4NE4, NW4NE4, NE4NE4;
				23	NW4NW4, NE4NW4, NW4NE4, NE4NE4;
				24	NW4NW4, NE4NW4, NW4NE4, NE4NE4.
		25 S	62 E	3	NW4SW4, SW4NW4, SE4NW4, NE4NW4, NW4NE4;
				4	SE4SW4, SW4SE4, NW4SE4, SE4SE4, NE4SE4, SE4NE4;
				8	SW4SW4, SE4SW4, NE4SW4, SW4SE4, NW4SE4, NE4SE4, SE4NE4;
				9	SW4NW4, NW4NW4, NE4NW4;
				17	NW4NW4, NE4NW4;
				18	SW4SW4, SE4SW4, NE4SW4, NW4SE4, SW4NE4, SE4NE4,

			NE4NE4;
		19	NW4NW4. NE4NW4.
24 S	62 E	25	NW4SW4. NE4SW4. NW4SE4. NE4SE4;
		26	SE4SW4. SW4SE4. NW4SE4. SE4SE4. NE4SE4;
		34	SW4SE4. SE4SE4. NE4SE4;
		35	NW4SW4. SW4NW4. SE4NW4. NE4NW4. NW4NE4.
24 S	63 E	1	NW4SW4. SW4NW4. SE4NW4. NE4NW4. NW4NE4;
		2	SW4SE4. SE4SE4. NE4SE4;
		10	SE4SE4. NE4SE4;
		11	SW4SW4. NW4SW4. NE4SW4. SW4NW4. SE4NW4. NE4NW4. SW4NE4. NW4NE4;
		15	SW4SW4. NW4SW4. NE4SW4. SE4NW4. SW4NE4. NW4NE4. NE4NE4;
		16	SE4SE4;
		21	SW4SW4. SE4SW4. NE4SW4. NW4SE4. SE4NW4. SW4NE4. NW4NE4; SE4NE4. NE4NE4;
		22	NW4NW4;
		28	NW4NW4;
		29	SW4NW4. SE4NW4. SW4NE4. SE4NE4. NE4NE4;
		30	NW4SW4. NE4SW4. SE4NW4. NW4SE4. NE4SE4. SW4NE4. SE4NE4.
23 S	63 E	36	SE4SE4. SW4SE4. NE4SE4.
23-1/2 S	63-1/2 E	36	SW4SE4. SE4SE4. NE4SE4.
23-1/2 S	64 E	31	NW4NW4. NE4NW4. SW4NW4. SE4NW4. NW4SW4.
23 S	64 E	28	SW4SW4. SE4SW4. SW4SE4. NW4SE4;
		29	NW4SW4. SW4SW4. NE4SW4. SE4SW4. SW4SE4. SE4SE4;
		30	SW4SE4. SE4SE4. NE4SE4;
		31	SW4SW4. NW4SW4. NE4SW4. SW4NW4. SE4NW4. NE4NW4. NW4NE4.

Northern Road Access Route Legal Description for the Linear Right-of-Way.
Highway Route 161 to Facility (primary access).

STATE	BASELINE	TWP	RNG	SEC	
Nevada	Mt. Diablo	24 S	58 E	36	E2NE4. SW4NE4. SE4.
		25 S*	58 E*	1	Lot 1. SE4NE4.
		25 S	59 E	6	Lot 5. 6. 7.

* unsurveyed

Southern Road Access Route Legal Description for the Linear Right-of-Way.
Highway Route 161 to Facility (temporary access).

STATE	BASELINE	TWP	RNG	SEC	
Nevada	Mt. Diablo	25 S	59 E	11	SW4SE4. SE4SW4;
				14	N2NW4. SW4NW4. NW4SW4;
				15	N2SE4. NE4SW4. S2SW4;
				16	S2S2;
				17	S2S2. NW4SW4;
				18	NE4SE4. E2NE4. NW4NE4;

				7	Lot 1, W2SE4, NE4SW4, E2NW4, NW4;
				6	Lots 5, 6, 7.

Water Pipeline

Southern Nevada Correctional Center, Jean Prison to Facility via utility corridor (primary route) with a variation in route near Facility.

STATE	BASELINE	TWP	RNG	SEC	
Nevada	Mt. Diablo	25 S	59 E	6	Lots 5, 6, 7.
				7	Lots 1, 2, 3, 4, SW4SE4, E2SW4, E2NW4;
				13	W2SW4;
				17	SW4SE4, SW4;
				18	Lot 1, SE4SE4, N2SE4, S2NE4, NW4NE4, E2NW4, NW4;
				20	NE4SE4, NE4, NE4NW4;
				21	S2SE4, NW4SE4, SE4SW4, N2SW4, S2NW4;
				23	E2NE4, E2SE4, SW4SE4;
				24	W2NW4;
				26	W2NE4, S2NW4, N2SW4;
				27	NW4NW4, SW4NW4, SE4NW4, NW4SW4, SW4NE4, SE4NE4, NW4SE4; NE4SE4, S2NE4, N2SE4, NE4SW4, NW4;
				28	N2NE4.
		25 S*	58 E*	1	Lot 1, NE4SE4, SE4NE4, NE4;
				12	SE4NE4.

Primary water pipeline route variation.

STATE	BASELINE	TWP	RNG	SEC	
Nevada	Mt. Diablo	25 S*	58 E*	1	Lot 1, NE4, SE4;
				12	SE4NE4, NE4SE4, NE4.
		25 S	59 E	6	Lots 5, 6, 7, SW4, NW4.

* unsurveyed

Water Pipeline Legal Description for the Linear Right-of-Way (alternative route).

Southern Nevada Correctional Center, Jean Prison to Facility via highway Route 161.

STATE	BASELINE	TWP	RNG	SEC	
Nevada	Mt. Diablo	25 S	59 E	3	S2SW4;
				4	Lot 4, NW4, NE4SW4, N2SE4, SE4SE4;
				5	Lots 1, 2, NE4, SE4NE4;
				10	S2NE4, NW4NE4, N2NW4;
				11	NW4SE4, SE4SW4, N2SW4, SW4NW4;
				13	W2SW4, NE4SW4, S2NW4, NW4NW4;
				14	E2NE4, S2SE4.
		24 S	59 E	31	Lots 1, 2, N2SE4, S2NE4, E2NW4, NW4;
				32	W2SE4, S2SW4, NW4SW4.
		24 S	58 E	36	E2NE4, SW4NE4, SE4.
		25 S*	58 E*	1	Lots 1, NE4, SE4NE4, NE4SE4.
		25 S	59 E	6	Lots 5, 6, 7, NW4. * unsurveyed

Kern River Gas Transmission pipeline to the Ivanpah Energy Center.

STATE	BASELINE	TWP	RNG	SEC	
Nevada	Mt. Diablo	25S	59E	6	Lot 6, SW4.

Temporary Construction and Laydown Area Legal Description.

STATE	BASELINE	TWP	RNG	SEC	
Nevada	Mt. Diablo	25 S*	58 E*	1	Lot 1, NE4.
		25 S	59 E	6	Lot 7, SW4.

* unsurveyed

Ivanpah Energy Center.

STATE	BASELINE	TWP	RNG	SEC	
Nevada	Mt. Diablo	25 S*	58 E*	1	SE4NE4, NE4SE4.
		25 S	59 E	6	Lots 5, 6, NW4, SW4.

* unsurveyed

Road 53Y Bypass Legal Description for Right-of-Way.

STATE	BASELINE	TWP	RNG	SEC	
Nevada	Mt. Diablo	25 S*	58 E*	1	SE4NE4, NE4SE4.
		25 S	59 E	6	Lots 5, 6, NW4, SW4.

* unsurveyed

ATTACHMENT BA -2: BIGHORN ALTERNATIVE LEGAL DESCRIPTIONS, BIGHORN ALTERNATIVE SITE PROPOSED GAS PIPELINE ROUTE (Primm Plant Site)

Serial Number 75474

Gas Pipeline Legal Description for the Linear Right-of-Way **Attachment 2-B**

BA-2a: Kern River Gas Transmission pipeline to Ivanpah Energy Center, Bighorn Alternative Site

STATE	BASELINE	TWP	RNG	SEC	1/16 SEC or Division	1/4 SEC	7.5' QUAD
Nevada	Mt. Diablo	27S	59E	6	Lot 8	NE	Stateline Pass
				6	Lot 13	NE	
				5	S 1/2	NW	
				5	N 1/2	SW	
				5	W 1/2	SE	
				5	SE	SW	
				5	SE	SE	
				4	S 1/2	SW	
				4	S 1/2	SE	
				9	E 1/2	NE	
				10	S 1/2	NW	
				10	SW	NE	

ATTACHMENT BA -1: BIGHORN ALTERNATIVE LEGAL DESCRIPTIONS, BIGHORN ALTERNATIVE SITE PROPOSED WATER SUPPLY PIPELINE ROUTES

Serial Number N-75475 -- Primm Plant Site Alternative, Option 1 alignment
Water Pipeline Legal Description for the Linear Right-of-Way
Southern Nevada Correctional Center (Jean Prison) wastewater facility east of railroad or west of railroad to Bighorn/Primm IEC site via two routes: BA-1a, parallel to Union Pacific Railroad or BA-1b, within the VEA transmission corridor **Attachment 3B**

BA-1a: Route parallel and east of railroad tracks

STATE	BASELINE	TWP	RNG	SEC	1/16 SEC or Division	1/4 SEC	7.5' QUAD
Nevada	Mt. Diablo	25S	59E	13	W 1/2	NE	Jean
				13	E 1/2	NW	
				13	all	SW	
				24	W 1/2	NW	
				23	SE	NE	
				23	E 1/2	SE	
				23	SW	SE	
				26	NE	NE	Jean & Roach
				26	W 1/2	NE	Jean & Roach
				26	W 1/2	SE	Roach
				35	W 1/2	NE	
				35	NW	SE	
				35	SE	NW	
				35	E 1/2	SW	
		26S	59E	2	Lot 3	NW	
				2	Lot 4	NW	
				2	SW	NW	
				2	W 1/2	SW	
				3	E 1/2	SE	
				10	E 1/2	NE	
				10	E 1/2	SE	
				10	W 1/2	SE	
				15	NE	NE	
				15	W 1/2	NE	
				15	W 1/2	SE	
				22	W 1/2	NE	
				22	E 1/2	NW	
				22	NW	SE	
				22	E 1/2	SW	
				27	E 1/2	NW	
				27	E 1/2	SW	
				27	W 1/2	SW	
				34	W 1/2	NW	
				34	W 1/2	SW	
				33	SE	SE	

		27S	59E	3	Lot 4	NW	
				3	SW	NW	
				4	Lot 1	NE	
				4	SE	NE	
				4	E 1/2	SE	Roach & Desert
				9	E 1/2	NE	Desert
				10	S 1/2	NW	
				10	SW	NE	

ATTACHMENT BA -1: BIGHORN ALTERNATIVE LEGAL DESCRIPTIONS, BIGHORN ALTERNATIVE SITE PROPOSED WATER SUPPLY PIPELINE ROUTES

Serial Number N-75475 -- Primm Plant Site Alternative, Option 2 alignment

Water Pipeline Legal Description for the Linear Right-of-Way

Southern Nevada Correctional Center (Jean Prison) wastewater facility east of railroad or west of railroad to Bighorn/Primm IEC site: BA-1b, within the VEA transmission corridor **Attachment 3-C**

STATE	BASELINE	TWP	RNG	SEC	1/16 SEC or Division	1/4 SEC	7.5' QUAD
Nevada	Mt. Diablo	25S	59E	13	W 1/2	NE	Jean
				13	E 1/2	NW	
				13	all	SW	
				24	W 1/2	NW	
				23	SE	NE	
				23	E 1/2	SE	
				23	SW	SE	
				26	NE	NE	Jean & Roach
				26	W 1/2	NE	Jean & Roach
				26	W 1/2	SE	Roach
				35	W 1/2	NE	
				35	SE	NE	
				35	NE	SE	
				36	W 1/2	SW	
				36	SE	SW	
				36	SW	SE	
		26S	59E	1	Lot 3	NW	
				1	Lot 2	NE	
				1	Lot 1	NE	
				1	SE	NE	
		*26S	60E	6	Lot 5	NW	
				6	SE	NW	
				6	SW	NE	
				6	N 1/2	SE	
				6	SE	SE	
				5	W 1/2	SW	
				5	SE	SW	
				8	N 1/2	NW	
				7	E 1/2	NE	
				7	W 1/2	NE	
				7	E 1/2	NW	
				7	Lot 2	NW	
		26S	59E	12	SE	NE	
				12	NE	SE	
				12	W 1/2	SE	

				13	W 1/2	NE	
				13	E 1/2	NW	
				13	NE	SW	
				13	W 1/2	SW	
				24	W 1/2	NW	
				23	E 1/2	NE	
				23	E 1/2	SE	
				23	W 1/2	SE	
				26	W 1/2	NE	
				26	SE	NW	
				26	E 1/2	SW	
				26	SW	SW	
				35	W 1/2	NW	
				34	SE	NE	
				34	E 1/2	SE	
				34	SW	SE	
		27S	59E	3	Lot 1	NE	
				3	Lot 2	NE	
				3	SW	NE	
				3	W 1/2	SE	Roach & Desert
				10	W 1/2	NE	Desert

* unsurveyed

ATTACHMENT 8 LEGAL DESCRIPTION, UNDERGROUND TELEPHONE LINE

Serial Number: 75895

Underground Telephone Line Legal Description for Right-of-Way **Attachment 4-A**

STATE	BASELINE	TWP	RNG	SEC	1/16 SEC or Division	1/4 SEC	7.5' QUAD
Nevada	Mt. Diablo	24S	59E	31	Lot 3	SW	Goodsprings
		24S	58E	36	S 1/2	NE	
				36	all	SE	
		25S*	58E*	1	Lot 1	NE	
				1	SE	NE	
				1	NE	SE	
		25S	59E	6	Lot 5	NW	
				6	Lot 6	SW	

* unsurveyed

Legal Description for the Linear Right-of-Way
Primm Plant Site to Table Mountain Substation to Mead Substation
Transmission Line Right-of-way

Serial Numbers: 75471 and 75472 **Attachment 1-B**
Primm Plant Site Alternative

State	Baseline	Township	Range	Section	1/16	1/4	Gov. Lot Number	USGS Quad	Parcel Number	Rev.
	Table Mountain to Mead Substation Portion of Transmission Line									
Nevada	Mt. Diablo	24S	58E	34	SE	NE		Goodsprings	202-34	
				34	NE	SE			202-34	
				35	SW	NW			202-35	
				35	NW	SW			202-35	
				35	SW	SW			202-35	
				35	SE	SW			202-35	
		25S	58E	2	NW	NW	GL4		218-02	2
				2	NE	NW	GL3		218-02	2
				2	SE	NW			218-02	
				2	NW	NE	GL2		218-02	2
				2	SW	NE			218-02	
				2	SE	NE			218-02	
				2	NW	SE			218-02	
				2	NE	SE			218-02	
				2	SE	SE			218-02	
				1	NW	SW			218-01	
				1	SW	SW			218-01	
				1	SE	SW			218-01	
				1	SW	SE			218-01	
				1	NW	SE			218-01	
				1	NE	SE			218-01	
				1	SE	SE			218-01	
				1	SE	NE			218-01	
				12	NW	NW			218-12	
				12	NE	NW			218-12	
				12	SE	NW			218-12	1
				12	NW	NE			218-12	
				12	SW	NE			218-12	
				12	SE	NE			218-12	
				12	NW	SE			218-12	
				12	NE	SE			218-12	
				12	SE	SE			218-12	
		25S	59E	6	SW	NW	GL5		217-06	3
				6	NW	SW	GL6		217-06	2
				6	SW	SW	GL7		217-06	1,2
				6	SE	SW			217-06	1
				7	NW	NW	GL1		217-07	1,2
				7	NE	NW			217-07	1
				7	SW	NW	GL2		217-07	1,2
				7	SE	NW			217-07	1
				7	NW	SW	GL3		217-07	2
				7	NE	SW			217-07	1
				7	SW	SW	GL4		217-07	2
				7	SE	SW			217-07	
				18	NW	NW	GL1		217-18	2
				18	NE	NW			217-18	
				18	SE	NW			217-18	
				18	SW	NE			217-18	

Legal Description for the Linear Right-of-Way
Primm Plant Site to Table Mountain Substation to Mead Substation
Transmission Line Right-of-way

Serial Numbers: 75471 and 75472 **Attachment 1-B**
Primm Plant Site Alternative

State	Baseline	Township	Range	Section	1/16	1/4	Gov. Lot Number	USGS Quad	Parcel Number	Rev.
				18	NW	SE			217-18	
				18	NE	SE			217-18	
				18	SE	SE			217-18	
Nevada	Mt. Diablo	25S	59E	17	NW	SW		Goodsprings	217-17	
				17	SW	SW			217-17	
				17	SE	SW			217-17	
				20	NW	NW			217-20	
				20	NE	NW			217-20	
				20	NW	NE			217-20	
				20	SW	NE			217-20	
				20	SE	NE			217-20	
				20	NE	SE			217-20	
				21	SW	NW		Goodsprings, Jean	217-21	
				21	NW	SW			217-21	
				21	NE	SW			217-21	
				21	SW	SW			217-21	
				21	SE	SW			217-21	
				21	SW	SE			217-21	
				28	NW	NE		Goodsprings, Stateline Pass Jean, Roach	217-28	
				28	NE	NE		Jean, Roach	217-28	
				28	SE	NE			217-28	
				27	NW	NW			217-27	
				27	SW	NW			217-27	
				27	SE	NW			217-27	
				27	NW	SW			217-27	
				27	NE	SW			217-27	
				27	SW	NE			217-27	
				27	SE	NE			217-27	
				27	NW	SE			217-27	
				27	NE	SE			217-27	
				26	SW	NW			217-26	
				26	SE	NW			217-26	
				26	NW	SW			217-26	
				26	NE	SW			217-26	
				26	SW	NE			217-26	
				26	NW	SE			217-26	
				26	SW	SE			217-26	
				35	NW	NE		Roach	217-35	
				35	SW	NE			217-35	
				35	SE	NE			217-35	
				35	NW	SE			217-35	
				35	NE	SE			217-35	
				36	NW	SW			217-36	
				36	SW	SW			217-36	
				36	SE	SW			217-36	
				36	SW	SE			217-36	

Legal Description for the Linear Right-of-Way
Primm Plant Site to Table Mountain Substation to Mead Substation
Transmission Line Right-of-way

Serial Numbers: 75471 and 75472 **Attachment 1-B**
Primm Plant Site Alternative

State	Baseline	Township	Range	Section	1/16	1/4	Gov. Lot Number	USGS Quad	Parcel Number	Rev.
		26S	59E	1	NE	NW	GL3		223-01	2
				1	NW	NE	GL2		223-01	2
				1	NE	NE	GL1		223-01	2
				1	SE	NE			223-01	
		26S	60E	6	SW	NW	GL5		224-00-1	2
Nevada	Mt. Diablo	26S	60E	6	SE	NW		Roach	224-00-1	
				6	SW	NE			224-00-1	3
				6	NE	SW			224-00-1	
				6	NW	SE			224-00-1	
				6	SW	SE			224-00-1	
				6	NE	SE			224-00-1	
				6	SE	SE			224-00-1	
				5	SW	SW			224-00-1	
				5	NW	SW			224-00-1	
				5	NE	SW			224-00-1	
				5	SE	NW			224-00-1	
				5	NW	SE			224-00-1	
				5	SW	NE			224-00-1	
				5	SE	NE			224-00-1	
				4	SW	NW			224-00-1	
				4	NW	NW	GL4		224-00-1	2
				4	NE	NW	GL3		224-00-1	2
				4	NW	NE	GL2		224-00-1	2
		25S	60E	33	SW	SE			216-33	
				33	SE	SE			216-33	
				33	NE	SE			216-33	
				33	SE	SW			216-33	3
				34	NW	SW		Roach, McCullough Pass	216-34	
				34	NE	SW			216-34	
				34	SW	NW			216-34	
				34	SE	NW			216-34	
				34	SW	NE			216-34	
				34	NW	NE			216-34	
				34	NE	NE			216-34	
				27	SE	SE		Roach	216-27	
				35	NW	NW		McCullough Pass	216-35	
				26	SW	SW		Roach, McCullough Pass	216-26	
				26	SE	SW			216-26	
				26	NE	SW			216-26	
				26	NW	SE			216-26	
				26	NE	SE			216-26	
				26	SE	NE			216-26	
				25	SW	NW		McCullough Pass	216-25	
				25	SE	NW			216-25	
				25	NW	NW			216-25	
				25	NE	NW			216-25	
				25	NW	NE			216-25	

Legal Description for the Linear Right-of-Way
Primm Plant Site to Table Mountain Substation to Mead Substation
Transmission Line Right-of-way

Serial Numbers: 75471 and 75472 **Attachment 1-B**
Primm Plant Site Alternative

State	Baseline	Township	Range	Section	1/16	1/4	Gov. Lot Number	USGS Quad	Parcel Number	Rev.
				25	NE	NE			216-25	
				24	SW	SE		Hidden Valley	216-24	
				24	SE	SE			216-24	
		25S	61E	19	SW	SW	GL4		215-00-2	2
				19	NW	SW	GL3		215-00-2	2
				19	NE	SW			215-00-2	
				19	SE	NW			215-00-2	
Nevada	Mt. Diablo	25S	61E	19	NW	SE		Hidden Valley	215-00-2	
				19	SW	NE			215-00-2	
				19	SE	NE			215-00-2	
				20	SW	NW			215-00-2	
				20	NW	NW			215-00-2	
				20	SE	NW			215-00-2	
				20	NE	NW			215-00-2	
				20	NW	NE			215-00-2	
				20	NE	NE			215-00-2	
				21	NW	NW			215-00-2	
				21	NE	NW			215-00-2	
				21	SE	NW			215-00-2	
				21	SW	NE			215-00-2	
				21	SE	NE			215-00-2	
				22	SW	NW			215-00-2	
				22	SE	NW			215-00-2	
				22	NW	SW			215-00-2	
				22	NE	SW			215-00-2	
				22	SW	NE			215-00-2	
				22	NW	NE			215-00-2	
				22	NE	NE			215-00-2	
				23	NW	NW		Hidden Valley, Sloan SE	215-00-2	
				23	NE	NW			215-00-2	
				23	NW	NE			215-00-2	
				23	NE	NE			215-00-2	
				24	NW	NW		Sloan SE	215-00-2	
				24	NE	NW			215-00-2	
				24	NW	NE			215-00-2	
				24	NE	NE			215-00-2	
		25S	62E	19	NW	NW	GL6		214-00-2	2
				19	NE	NW	GL5		214-00-2	2
				18	SW	SW	GL11		214-00-1	2
				18	SE	SW	GL12		214-00-1	2,3
				18	NE	SW	GL9		214-00-1	2
				18	NW	SE			214-00-1	
				18	SW	SE			214-00-1	3
				18	SW	NE			214-00-1	
				18	SE	NE			214-00-1	
				18	NE	NE			214-00-1	
				17	NW	NW			214-00-1	
				17	NE	NW			214-00-1	

Legal Description for the Linear Right-of-Way
Primm Plant Site to Table Mountain Substation to Mead Substation
Transmission Line Right-of-way

Serial Numbers: 75471 and 75472 **Attachment 1-B**
Primm Plant Site Alternative

State	Baseline	Township	Range	Section	1/16	1/4	Gov. Lot Number	USGS Quad	Parcel Number	Rev.
				8	SW	SW			214-00-1	
				8	SE	SW			214-00-1	
				8	NE	SW			214-00-1	
				8	SW	SE			214-00-1	
				8	NW	SE			214-00-1	
				8	NE	SE			214-00-1	
				8	SE	NE			214-00-1	
				9	SW	NW			214-00-1	
				9	NW	NW			214-00-1	
Nevada	Mt. Diablo	25S	62E	9	NE	NW		Sloan SE	214-00-1	
				4	SE	SW			214-00-1	
				4	SW	SE			214-00-1	
				4	NW	SE			214-00-1	
				4	SE	SE			214-00-1	
				4	NE	SE			214-00-1	
				4	SE	NE			214-00-1	
				3	NW	SW			214-00-1	
				3	SW	NW			214-00-1	
				3	SE	NW			214-00-1	
				3	NE	NW	GL7		214-00-1	2
				3	NW	NE	GL6		214-00-1	2
		24S	62E	34	SW	SE			206-00-2	
				34	SE	SE			206-00-2	
				34	NE	SE			206-00-2	
				35	NW	SW			206-00-2	
				35	SW	NW			206-00-2	
				35	SE	NW			206-00-2	
				35	NE	NW			206-00-2	
				35	NW	NE			206-00-2	
				26	SE	SW			206-00-2	
				26	SW	SE			206-00-2	
				26	NW	SE			206-00-2	
				26	SE	SE			206-00-2	
				26	NE	SE			206-00-2	
				25	NW	SW		Sloan SE, Boulder City SW	206-00-2	
				25	NE	SW			206-00-2	
				25	NW	SE			206-00-2	
				25	NE	SE			206-00-2	
		24S	63E	30	NW	SW	GL7	Boulder City SW	207-00-2	2
				30	NE	SW			207-00-2	
				30	SW	NW	GL6		207-00-2	2
				30	SE	NW			207-00-2	
				30	NW	SE			207-00-2	
				30	NE	SE			207-00-2	
				30	SW	NE			207-00-2	
				30	SE	NE			207-00-2	
				29	SW	NW			207-00-2	
				29	SE	NW			207-00-2	

Legal Description for the Linear Right-of-Way
Primm Plant Site to Table Mountain Substation to Mead Substation
Transmission Line Right-of-way

Serial Numbers: 75471 and 75472 **Attachment 1-B**
Primm Plant Site Alternative

State	Baseline	Township	Range	Section	1/16	1/4	Gov. Lot Number	USGS Quad	Parcel Number	Rev.
				29	SW	NE			207-00-2	
				29	SE	NE			207-00-2	
				29	NE	NE			207-00-2	
				29	NE	SE			207-00-2	
				28	SW	NW			207-00-2	1
				28	NW	NW			207-00-2	
				28	NE	NW			207-00-2	1
				28	NW	SW			207-00-2	
				21	SW	SW			207-00-2	
				21	SE	SW			207-00-2	
				21	NE	SW			207-00-2	
Nevada	Mt. Diablo	24S	63E	21	SW	SE		Boulder City SW	207-00-2	1
				21	NW	SE			207-00-2	
				21	NE	SE			207-00-2	1
				21	SE	NW			207-00-2	
				21	SW	NE			207-00-2	
				21	NW	NE			207-00-2	
				21	SE	NE			207-00-2	
				21	NE	NE			207-00-2	
				22	SW	NW			207-00-2	1
				22	NW	NW			207-00-2	
				22	NE	NW			207-00-2	1
				16	SE	SE			207-00-1	
				15	SW	SW			207-00-1	
				15	SE	SW			207-00-1	1
				15	NW	SW			207-00-1	
				15	NE	SW			207-00-1	
				15	SW	SE			207-00-1	1
				15	NW	SE			207-00-1	1
				15	SE	NW			207-00-1	
				15	SW	NE			207-00-1	
				15	SE	NE			207-00-1	1
				15	NW	NE			207-00-1	
				15	NE	NE			207-00-1	
				14	NW	NW			207-00-1	1
				10	SE	SE		Boulder City SW, Boulder City NW	207-00-1	
				10	NE	SE			207-00-1	
				11	SW	SW			207-00-1	
				11	SE	SW			207-00-1	1
				11	NW	SW			207-00-1	
				11	NE	SW			207-00-1	
				11	SW	NW			207-00-1	
				11	SE	NW			207-00-1	
				11	NE	NW			207-00-1	
				11	NW	SE			207-00-1	1
				11	SW	NE			207-00-1	
				11	NW	NE			207-00-1	
				11	SE	NE			207-00-1	1

Legal Description for the Linear Right-of-Way
Primm Plant Site to Table Mountain Substation to Mead Substation
Transmission Line Right-of-way

erial Numbers: 75471 and 75472 **Attachment 1-B**
Primm Plant Site Alternative

State	Baseline	Township	Range	Section	1/16	1/4	Gov. Lot Number	USGS Quad	Parcel Number	Rev.
				11	NE	NE			207-00-1	1
				2	SW	SE		Boulder City NW	207-00-1	
				2	SE	SE			207-00-1	
				2	NE	SE			207-00-1	
				12	NW	NW			207-00-1	1
				1	SW	SW			207-00-1	1
				1	NW	SW			207-00-1	
				1	SE	SW			207-00-1	1
				1	NE	SW			207-00-1	1
				1	SW	NW			207-00-1	
				1	SE	NW			207-00-1	
				1	NE	NW	GL7		207-00-1	2
				1	NW	SE			207-00-1	1
Nevada	Mt. Diablo	23S	63E	1	SW	NE		Boulder City NW	207-00-1	1
				1	NW	NE	GL6		207-00-1	2
				1	NE	NE	GL5		207-00-1	1,2
				36	SE	SE			189-36	
				36	SW	SE			189-36	
				36	NE	SE			189-36	
		23S	63-1/2E	36	SW	SE			188-36	
				36	SE	SE			188-36	
				36	NE	SE			188-36	
		23-1/2S	64E	31	NW	NW	GL1		187-31	2
				31	NE	NW			187-31	
				31	SW	NW	GL2		187-31	2
				31	SE	NW			187-31	
				31	NW	SW	GL3		187-31	2
				31	NE	SW	GL4		187-31	1,2
				31	SW	NE			187-31	1
				31	NW	NE			187-31	1
		23S	64E	31	SW	SW	GL8	Boulder City NW, Boulder City	186-31	2
				31	SE	SW			186-31	1
				31	NW	SW	GL7		186-31	2
				31	NE	SW			186-31	
				31	SW	NW	GL6		186-31	2
				31	SE	NW			186-31	
				31	NE	NW			186-31	
				31	NW	SE			186-31	1
				31	SW	NE			186-31	1
				31	NW	NE			186-31	
				31	NE	NE			186-31	1
				30	SW	SE			186-30	
				30	SE	SE			186-30	
				30	NE	SE			186-30	
				29	NW	SW			186-29	
				29	SW	SW			186-29	
				29	NE	SW			186-29	
				29	SE	SW			186-29	

Legal Description for the Linear Right-of-Way
Primm Plant Site to Table Mountain Substation to Mead Substation
Transmission Line Right-of-way

Serial Numbers: 75471 and 75472 **Attachment 1-B**
Primm Plant Site Alternative

State	Baseline	Township	Range	Section	1/16	1/4	Gov. Lot Number	USGS Quad	Parcel Number	Rev.
				29	SW	SE		Boulder City	186-29	
				29	SE	SE			186-29	
				28	SW	SW			186-28	
				28	SE	SW			186-28	
				28	SW	SE			186-28	
				28	NW	SE			186-28	
				28	NE	SE			186-28	1

Revisions:

1. Line Reroute Revisions Following Field Investigations, Dated 5/29/02.
2. Added Government Lot (GL) Numbers to Legal Description, Dated 6/13/02.
3. Minor Revisions, Dated 7/18/02.

Extension of Ivanpah-Mead/Ivanpah-Table Mountain line south to Primm Plant Site

				35	SE	NE	
				35	NE	SE	
				36	W 1/2	SW	
				36	SE	SW	
				36	SW	SE	
		26S	59E	1	Lot 3	NW	
				1	Lot 2	NE	
				1	Lot 1	NE	
				1	SE	NE	
		*26S	60E	6	Lot 5	NW	
				6	SE	NW	
				6	SW	NE	
				6	N 1/2	SE	
				6	SE	SE	
				5	W 1/2	SW	
				5	SE	SW	
				8	N 1/2	NW	
				7	E 1/2	NE	
				7	W 1/2	NE	
				7	E 1/2	NW	
				7	Lot 2	NW	
		26S	59E	12	SE	NE	
				12	NE	SE	
				12	W 1/2	SE	
				13	W 1/2	NE	
				13	E 1/2	NW	
				13	NE	SW	
				13	W 1/2	SW	
				24	W 1/2	NW	
				23	E 1/2	NE	
				23	E 1/2	SE	
				23	W 1/2	SE	
				26	W 1/2	NE	

Legal Description for the Linear Right-of-Way
Primm Plant Site to Table Mountain Substation to Mead Substation
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Serial Numbers: 75471 and 75472 **Attachment 1-B**
Primm Plant Site Alternative

State	Baseline	Township	Range	Section	1/16	1/4	Gov. Lot Number	USGS Quad	Parcel Number	Rev.
				26	SE	NW				
				26	E 1/2	SW				
				26	SW	SW				
				35	W 1/2	NW				
				34	SE	NE				
				34	E 1/2	SE				
				34	SW	SE				
		27S	59E	3	Lot 1	NE				
				3	Lot 2	NE				
				3	SW	NE				
				3	W 1/2	SE	Roach & Desert			
				10	W 1/2	NE	Desert			

unsurveyed

APPENDIX B
LISTING OF POWER GENERATION PROJECTS

Proposed Projects

Facility	Technology	Fuel	# of Units	Output (MW)	Est Online Date	Company	Notes	Source	County	Last Updated
ARIZONA										
Bowie I	Combined	Gas	2-2-1	500	30-Jun-05	SW Power Group II	Delayed one year	ACC	Cochise	13-Jun-02
Vail Generating (Rita Ranch)		Gas	2	150	01-Dec-03	Tucson Electric		Power Marketing	Pima	04-Sep-01
Mesquite Power II	Combined	Gas		630	01-Jan-04	Sempra Energy Resources		Maricopa County Web	Maricopa	13-Jun-02
Gila Bend	Combined	Gas	3-2-1	845	01-Jun-04	Power Dev Ent	ACC Sited Pending Maricopa County siting	AZ Republic	Maricopa	12-Jun-01
Springerville Generation I		Coal	1	380	01-Jun-04	Unisource/Bechtel		PMW	Apache	13-Jun-02
La Paz I	Combined	Gas		540	01-Nov-04	Allegheny		Allegheny website	La Paz	25-Apr-02
Ambos Nogales Generating		Gas		500	01-Dec-04	Maestros Group		ACC	Santa Cruz	13-Jun-02
Gila River IV	Combined	Gas	4-2-1	580	01-Oct-03	Panda Energy/TECO		Maricopa County	Maricopa	13-Jun-02
Santan	Combined	Gas	3-3-1	825	01-May-05	SRP		www.santanfacts.org	Maricopa	12-Jun-01
Bowie II	Combined	Gas	2-2-1	500	01-Jun-06	SW Power Group II	Delayed one year	ACC	Cochise	13-Jun-02
Springerville Generation II		Coal	1	380	01-Dec-05	Unisource/Bechtel		PMW	Apache	13-Jun-02
Redhawk 3	Combined	Gas	1-2-1	530	01-Jun-06	APS	Merchant	PMW	Maricopa	12-Jun-01
Winchester	Combined	Gas		750	01-Jun-07	Independent Power Tech		ACC	Cochise	12-Oct-01
Kykotsmovi		Coal		1200	01-Jun-08	Reliant	Hopi reservation in NE Arizona	PMW 4/15/02	Navajo	25-Apr-02
Safford		Gas		220	01-Jan-11	Powergen LLC		ACC	Graham	12-Jun-01
White Tank Mountain	Pump Storage	Hydro	5	1250	01-Jan-11	Arizona Independent Pwr		CEM	Maricopa	12-Jun-01
Griffith Energy Project	Combined	Gas	2-2-1	650	11-Jan-02	Griffith Energy (PPL & Duke)	Complete	mohave news	Mohave	29-Jan-02
La Paz II	Combined	Gas		540	01-Apr-05	Allegheny		Allegheny website	La Paz	25-Apr-02
Redhawk 2	Combined	Gas	1-2-1	530	01-Sep-02	APS	Under Construction	PMW/ACC	Maricopa	05-Jun-02
Redhawk 4	Combined	Gas	1-2-1	530	01-Dec-07	APS	Merchant	PMW	Maricopa	12-Jun-01
Harquahala Generating Station	Combined	Gas	4-1-1	1040	01-Sep-03	PG&E NEG	Merchant	Maricopa County	Maricopa	12-Jun-01
Sundance Energy Project 1		Gas		450	01-Aug-02	PPL Global	In commissioning & Start-up	PPL Website	Pinal	05-Jun-02
Arlington Valley I	Combined	Gas	1-2-1	580	01-Aug-02	Duke	Under Construction	CEM	Maricopa	12-Jun-01
Redhawk 1	Combined	Gas	1-2-1	530	01-Sep-02	APS	Under Construction	PMW/ACC	Maricopa	05-Jun-02
Kyrene (Oasis)	Combined	Gas	1-2-1	250	01-Sep-02	Salt River	In commissioning & Start-up	http://www.kyrenefacts.org/	Maricopa	09-Jul-02
Sundance Energy Project 2		Gas		90	01-Sep-02	PPL Global	ACC Docket # L-00000W-00-0107	EPA Federal Register	Pinal	04-Jun-02
Saguaro		Gas		80	01-Sep-02	APS		APS Website	Pinal	13-Jun-02
Mesquite Power I	Combined	Gas		630	01-Jul-03	Sempra Energy Resources		Maricopa County Web	Maricopa	13-Jun-02
Gila River I	Combined	Gas	4-2-1	580	01-May-03	Panda Energy/TECO		Maricopa County	Maricopa	04-Jun-02
West Phoenix (Phase 2)	Combined	Gas		530	01-Jun-03	APS		Website/ACC	Maricopa	05-Jun-02
Welton-Mohawk(Yuma Energy)	Combined	Gas		500	01-Jun-03	Welton-Mohawk		ACC	Yuma	12-Oct-01
Littlefield (Beaver Dam)	Combined	Gas		500	01-Jun-03	Williams Energy		ACC	Mohave	12-Jun-01

Facility	Technology	Fuel	# of Units	Output (MW)	Est Online Date	Company	Notes	Source	County	Last Updated
Gila River II	Combined	Gas	4-2-1	580	01-Jul-03	Panda Energy/TECO		Maricopa County	Maricopa	04-Jun-02
Apache Station GT #4	GT	Gas/FO	11	40	01-Oct-02	Arizona Elec Power Co-op		Owner	Cochise	28-Jan-02
Arlington Valley II	Combined	Gas		600	01-Jul-03	Duke		CEM	Maricopa	28-Jan-02
Gila River III	Combined	Gas	4-2-1	580	01-Sep-03	Panda Energy/TECO		Maricopa County	Maricopa	13-Jun-02
CALIFORNIA										
Palomar Energy (Escondido)		Gas		500	01-Jan-05	Sempra		CEC/Corp Website	San Diego	20-Jun-02
Vernon	Combined	Gas		134	01-Dec-04	City of Vernon		CEC	Los Angeles	20-Jun-02
Magnolia Modernization		Gas		250	01-Dec-04	City of Burbank		CEC	Los Angelos	20-Jun-02
Russell City Energy Center	Combined	Gas		600	01-Dec-04	Calpine/Bechtel	Still pursuing permits	CEC	Alameda	20-Jun-02
Fourmile Hill		Geotherma l		50	01-Dec-04	Calpine		BLM Website	Siskiyou/Modoc	17-Jan-02
Metcalf Energy Center	Combined	Gas	2-2-1	600	01-Dec-04	Calpine & Bechtel	CEC Docket # 99-AFC-3. 1% complete. Delayed 1+ year	CEC Website	Santa Clara	20-Jun-02
San Joaquin Valley		Gas		1100	01-Sep-04	Calpine		CEC Website	Fresno	20-Jun-02
Morro Bay	Combined	Gas	2-2-1	1200	01-Oct-04	Duke	CEC Docket # 00-AFC-12 (Replaces 750MW 450MW net)	CEC Website	San Luis Obispo	20-Jun-02
Inland Empire	Combined	Gas		670	01-Jan-05	Calpine		CEC	Riverside	20-Jun-02
Port of Stockton CC	Combined	Gas		600	01-Jul-06			CEC	San Joaquin	31-Jan-02
Mountainview		Gas		1056	01-Jun-04	Thermo Ecotek	CEC Docket # 00-AFC-2; 5% complete. Delayed 1 year	CEC Website	San Bernardino	20-Jun-02
El Segundo		Gas		630	01-Nov-04	NRG & Dynergy	CEC Docket # 00-AFC-14 630 MW replaces 350MW Net 280MW	CEC	Los Angelos	20-Jun-02
Potrero	Combustion	Gas	2	540	01-Jan-05	Mirant	CEC Docket # 00-AFC-4	CEC Website	Contra Costa	20-Jun-02
SMUD Combined Cycle	Combined	Gas		500	01-Jan-05	SMUD		CEC	Sacramento	20-Jun-02
East Altamont		Gas		1100	01-Jan-05	Calpine	CEC Docket # 01-AFC-4	CEC Website	Alameda	20-Jun-02
Avenal	Combined	Gas		600	01-Jan-05	Duke		CEC Website	Kings	31-Jan-02
FPL Tesla	Combined	Gas		1120	01-Feb-05	FPL		CEC Website	Alameda	31-Jan-02
Three Mountain	Combined	Gas	2-2-1	500	01-Mar-05	Covanta	CEC Docket # 99-AFC-2 Delayed 2 years	CEC Website	Shasta	20-Jun-02
Roseville		Gas		750	01-Mar-05	Enron		CEC	Placer	20-Jun-02
Midway-Sunset	Combined	Gas	2-2-1	500	01-Mar-06	ARCO Western Energy	Delayed 2 years.	CEC Website	Kern	20-Jun-02
Teayawa Energy Center		Gas		600	01-Jan-11	Calpine	Located on Torres Martinez Desert Cahuilla	Company Website	Riverside	20-Jun-02
Scattergood	Combined	Gas		50	01-Jan-11	LADWP	Upgrades to existing plant	LADWP Press Release	Los Angelos	
Haynes	Combined	Gas		50	01-Jan-11	LADWP	Upgrades to existing plant	LADWP Press Release	Los Angelos	
Blythe II	Combined	Gas		560	01-May-04	Summit Energy Group		CEC Website	Riverside	20-Jun-02
Salton Sea VI		Geotherma l		180	01-Oct-04	Cal Energy		CEC Website	Imperial	31-Jan-02
Contra Costa	Combined	Gas	2-2-1	530	01-Jun-05	Mirant	CEC Docket # 00-AFC-1; 7% complete. Delayed 1+ year	CEC Website	Contra Costa	20-Jun-02
Valero Cogeneration I				51	01-Jul-02	Valero Oil		CEC Website	Solano	20-Jun-02

Facility	Technology	Fuel	# of Units	Output (MW)	Est Online Date	Company	Notes	Source	County	Last Updated
Otay Mesa	Combined	Gas	2-2-2	510	01-Dec-04	Calpine	CEC Docket # 99-AFC-5; 5% Complete. Delayed 1 year	CEC Website	San Diego	31-Jan-02
Los Esteros (US Dataport) Exp		Gas		70	01-Dec-03	Calpine		CEC	Santa Clara	20-Jun-02
Calpine King City	Peaker	Gas		50	14-Jan-02	Calpine	Complete.	CEC Website	Monterey	31-Jan-02
Gilroy 3	Peaker	Gas	3	45	15-Feb-02	Calpine	Complete	CEC Website	Santa Clara	12-Jun-02
El Cajon	Peaker	Gas		50	01-Apr-02	Calpeak	Complete	CEC	San Diego	18-Jun-02
Vaca-Dixon	Peaker	Gas		49	01-Jun-02	Calpeak	Complete	CEC	Solano	18-Jun-02
Delta Energy Center	Combined	Gas	3-3-1	880	01-Jun-02	Calpine & Bechtel	Complete	CEC Website	Contra Costa	18-Jun-02
Huntington Beach Modern. I		Gas		225	01-Jul-02	AES	99% complete.	CEC	Orange	20-Jun-02
Lemoore (Henrietta)	Peaker	Gas		91	03-Jul-02	GWF		CEC	Kings	08-Jul-02
La Paloma Phase I	Combined	Gas	2-2-1	262	08-Jul-02	PG&E NEG	CEC Docket # 98-AFC-2 95% complete	CEC Website	Kern	18-Jun-02
Yuba City Energy	Peaker	Gas		45	15-Jul-02	Calpine	Under Construction	Corp Website	Sutter	12-Jun-02
Moss Landing II	Combined	Gas	2-2-1	530	19-Jul-02	Duke	CEC Docket # 99-AFC-4 98% complete	CEC Website	Monterey	18-Jun-02
La Paloma Phase II	Combined	Gas	2-2-1	262	04-Sep-02	PG&E NEG	CEC Docket # 98-AFC-2 95% complete	CEC Website	Kern	18-Jun-02
Blythe	Combined	Gas	2-2-1	520	01-Apr-03	Summit Energy Group	CEC Docket # 99-AFC-8 72% complete	CEC Website	Riverside	20-Jun-02
Moss Landing I	Combined	Gas	2-2-1	530	24-Jun-02	Duke	Complete	CEC Website	Monterey	08-Jul-02
Sunrise Power Phase II	Combined	Gas		265	01-Aug-03	Edison International	Convert Sunrise I to a 580MW Combined	Edison Press Release	Kern	31-Jan-02
La Paloma Phase III	Combined	Gas	2-2-1	262	30-Sep-02	PG&E NEG	CEC Docket # 98-AFC-2 95% complete	CEC Website	Kern	18-Jun-02
Woodland Generation Station	Combined	Gas		80	01-May-03	Modesto Irrigation	Filed SPPE Application	CEC	Stanislaus	17-Jan-02
High Desert	Combined	Gas	3-3-3	830	01-Jul-03	Inland Group & Constellation	CEC Docket # 97-AFC-1; 54% complete	CEC Website	San Bernardino	20-Jun-02
Valley	Combined	Gas		500	01-Sep-03	LADWP	Upgrades to existing plant	LADWP Website	Los Angelos	31-Jan-02
Elk Hills CC	Combined	Gas	2-2-1	500	01-Apr-03	Sempra/OXY	CEC Docket # 99-AFC-1; 38% complete	CEC & Sempra Webs	Kern	20-Jun-02
Los Esteros (US Dataport)	Peaker	Gas		180	01-Mar-03	Calpine	may be in list of delayed or cancelled projects	CEC	Santa Clara	20-Jun-02
Tracy	Peaker	Gas		169	01-Feb-03	GWF		CEC	San Joaquin	20-Jun-02
Valero Cogeneration II				51	01-Dec-02	Valero Oil		CEC Website	Solano	20-Jun-02
La Paloma Phase IV	Combined	Gas	2-2-1	262	23-Oct-02	PG&E NEG	CEC Docket # 98-AFC-2 95% complete	CEC Website	Kern	18-Jun-02
Pastoria	Combined	Gas	3-3-2	750	01-Jun-03	Calpine	CEC Docket # 99-AFC-7; 15% complete	CEC Website	Kern	20-Jun-02
NEVADA										
Silver Hawk	Combined	Gas		570	01-May-04	Pinnacle West	http://puc.state.nv.us/electric/propgen.htm	NV PUC	Clark	10-Sep-01
Bighorn CC	Combined	Gas		580	01-Sep-03	Reliant	http://puc.state.nv.us/electric/propgen.htm	NV PUC	Clark	30-Jan-02

Facility	Technology	Fuel	# of Units	Output (MW)	Est Online Date	Company	Notes	Source	County	Last Updated
Red Rock Canyon	Pump Storage	Hydro		400	01-Dec-05	Blue Diamond Power	http://puc.state.nv.us/electric/propgen.htm	NV PUC	Clark	15-Jan-02
Shoshone Mountain Wind III		Wind		85	01-Dec-05	M&N Wind Power	http://puc.state.nv.us/electric/propgen.htm	NV PUC	Nye	19-Jun-02
Washoe Power Plant	Combined	Gas		540	01-Jun-05	Duke Energy NA	http://puc.state.nv.us/electric/propgen.htm - 1 yr delay	NV PUC	Washoe	19-Jun-02
Copper Mountain (El Dorado II)	Combined	Gas		500	01-Jun-05	Sempra/Reliant	http://puc.state.nv.us/electric/propgen.htm	NV PUC	Clark	19-Jun-02
Ivanpah	Combined	Gas		500	01-Mar-05	Diamond Generating	http://puc.state.nv.us/electric/propgen.htm	NV PUC	Clark	20-Jun-02
Shoshone Mountain Wind II		Wind		85	01-Dec-04	M&N Wind Power	http://puc.state.nv.us/electric/propgen.htm	NV PUC	Nye	19-Jun-02
Toquop Energy	Combined	Gas		1100	01-Oct-04	Cogentrix	http://puc.state.nv.us/electric/propgen.htm	NV PUC	Lincoln	10-Sep-01
Table Mountain Wind Project		Wind		90	01-Dec-03	M&N Wind Power	http://puc.state.nv.us/electric/propgen.htm	NV PUC	Clark	15-Jan-02
Las Vegas Cogen II	Combined	Gas		230	01-Sep-02	Black Hills	http://puc.state.nv.us/electric/propgen.htm	NV PUC	Clark	15-Jan-02
Moapa Energy Facility II	Combined	Gas		600	01-Jun-03	Duke Energy NA	http://puc.state.nv.us/electric/propgen.htm	NV PUC	Clark	30-Jan-02
Moapa Energy Facility I	Combined	Gas		600	01-Apr-03	Duke Energy NA	http://puc.state.nv.us/electric/propgen.htm	NV PUC	Clark	30-Jan-02
Rye Patch	Geothermal	Geothermal		12	01-Mar-03	Mt Wheeler power	http://puc.state.nv.us/electric/propgen.htm	NV PUC	Pershing	19-Jun-02
Apex Industrial I	Combined	Gas		550	01-Mar-03	Mirant	http://puc.state.nv.us/electric/propgen.htm	NV PUC	Clark	30-Jan-02
EOPT TRI	Peaker			30	31-Dec-02	EOPT	http://puc.state.nv.us/electric/propgen.htm	NV PUC	Storey	19-Jun-02
Shoshone Mountain Wind I		Wind		85	01-Dec-03	M&N Wind Power	http://puc.state.nv.us/electric/propgen.htm	NV PUC	Nye	19-Jun-02

Sources: California Energy Commission Website - July 9, 2002 and Nevada PUC

Projects Completed in 2001

Facility	Technology	Fuel	# of Units	Output (MW)	Est Online Date	Company	Source	County	Last Updated
ARIZONA									
Tucson CT1		Gas	1	75	01-Jun-01	Tucson Electric Power	ACC	Pima	06-Sep-01
Desert Basin Generating		Gas		520	01-Jun-01	Reliant	WEU/CEM	Pinal	06-Sep-01
South Point		Gas		540	01-Jun-01	Calpine	WEU	Mohave	12-Jun-01
West Phoenix Temporary	GT	Gas	5	99	01-Jul-01	Arizona Public Service	ACC	Maricopa	13-Jun-01
Saguaro Temporary	GT	Gas	5	99	01-Jul-01	Arizona Public Service	ACC	Maricopa	13-Jun-01
APS Upgrades and Reactivate		Gas		203	01-Jul-01	Arizona Public Service	ACC	Maricopa	13-Jun-01
West Phoenix (Phase 1)	Combined	Gas		120	01-Aug-01	APS/Calpine	WEU/PMW/CEM	Maricopa	06-Sep-01
Tucson CT2		Gas	1	21	01-Aug-01	Tucson Electric Power	ACC	Pima	06-Sep-01
CALIFORNIA									
Procter & Gamble		Gas		44	01-Apr-01	Sacramento Municipal	CEC	Sacramento	31-Jan-02
SMUD McClellan Upgrade		Gas		22	01-May-01	SMUD		Sacramento	31-Jan-02
Chowchilla II	Peaker	Gas		49	14-Jun-01	NEO	CEC	Madera	31-Jan-02
Harbor Cogen	Cogeneration	Gas		18	14-Jun-01		CEC	Los Angelos	31-Jan-02
Larkspur	Peaker	Gas		90	01-Jul-01	Wildflower LLP	CEC	San Diego	31-Jan-02
Sutter Power	Combined	Gas	2-2-1	540	01-Jul-01	Calpine	CEC Website	Sutter	31-Jan-02
Facility	Combined	Gas	2-2-2	555	01-Jul-01	Calpine	CEC Website	Contra Costa	31-Jan-02
Indigo 1&2	Peaker	Gas		90	05-Jul-01	Wildflower LLP	CEC	Riverside	31-Jan-02
Hanford Peaker	Peaker	Gas	1-1-1	95	01-Aug-01	GWF Power Sys	CEC Website	Kings	31-Jan-02
Sunrise Power Phase I	Simple	Gas	2-2-0	320	01-Aug-01	Edison International	CEC Website	Kern	31-Jan-02
Red Bluff	Peaker	Gas		47	02-Aug-01	NEO	CEC	Tehama	31-Jan-02
Drews	Peaker	Gas		40	15-Aug-01	Alliance Colton LLC	CEC	San Bernadino	31-Jan-02
Fresno Cogen	Cogeneration	Gas		23	16-Aug-01	Wellhead	CEC	Fresno	31-Jan-02
Century	Peaker	Gas		40	11-Sep-01	Alliance Colton LLC	CEC	San Bernadino	31-Jan-02
Indigo 3	Peaker	Gas		45	15-Sep-01	Wildflower LLP	CEC	Riverside	31-Jan-02
SeaWest Wind Projects	Wind	Wind	84	17	30-Sep-01	Seawest, Inc	CEC	Riverside	31-Jan-02
(Escondido)	Peaker	Gas		49	15-Oct-01	CalPeak	CEC	San Diego	31-Jan-02
Gilroy 1&2	Peaker	Gas	3	90	24-Oct-01	Calpine	CEC Website	Santa Clara	17-Jan-02
CalPeak Border	Peaker	Gas		49	26-Oct-01	CalPeak	CEC	San Diego	31-Jan-02
LADWP Valley CT Project		Gas	1	47	21-Nov-01	LADWP	LADWP	Los Angeles	31-Jan-02
LADWP Harbor CT Project		Gas	5	188	21-Nov-01	LADWP	LADWP	Los Angeles	31-Jan-02
Panoche-Los Banos	Peaker	Gas		49	15-Dec-01	Wellhead	CEC	Fresno	17-Jan-02
Gates	Peaker	Gas		45	31-Dec-01	Wellhead	CEC	Fresno	17-Jan-02
CalPeak Fresno	Peaker	Gas		45	31-Dec-01	CalPeak	CEC	Fresno	30-Jan-02
NEVADA									
TRI-Center Power Plant		Gas		360	01-Jun-01	Naniwa Energy	PUC NV press release	Storey	10-Sep-01

Sources: California Energy Commission Website - July 9, 2002 and Nevada PUC

Projects Delayed, Cancelled, or Denied

Facility	Technology	Fuel	# of Units	Output (MW)	Est Online Date	Company	Source	County	Last Updated
ARIZONA									
Tonopah	Combined	Gas		1100	01-Jun-03	PG&E NEG/Shaw	Power Marketing Ass.	Maricopa	13-Jun-02
Signal Peak I	Combined	Gas		580	01-Apr-04	Reliant	Corp Press Release	Pinal	06-Sep-01
Signal Peak II	Combined	Gas		580	01-Jan-09	Reliant	Corp Press Release	Pinal	06-Sep-01
Caithness Big Sandy (Phase I)	Combined	Gas	1-2-1	500	01-Jan-11	Caithness	ACC Website	Mohave	28-Dec-01
Toltec Power Station I	Combined	Gas	2-2-1	600	01-Jan-11	SW Power Group II	ACC/Corp Website	Pinal	31-Jan-02
Toltec Power Station II	Combined	Gas	2-2-1	600	01-Jan-11	SW Power Group II	ACC/Corp Website	Pinal	31-Jan-02
Toltec Power Station III	Combined	Gas	2-2-1	600	01-Jan-11	SW Power Group II	ACC/Corp Website	Pinal	31-Jan-02
Caithness Big Sandy (Phase II)	Combined	Gas	1-1-1	220	01-Jan-11	Caithness	ACC Website	Mohave	28-Dec-01
CALIFORNIA									
South City	Combined	Gas		550	01-Jan-11	AES	CEC Website	San Mateo	31-Jan-02
Sunol CC	Combined	Gas		600	01-Jan-11	Calpine	CEC	Alameda	30-Jan-02
Fresno CC	Combined	Gas		1100	01-Jan-11	Calpine	CEC	Fresno	30-Jan-02
Ocotillo Power II	Combined	Gas		260	01-Jan-11	InterGen	CEC	Riverside	22-Jan-02
United Golden Gate Peaking	Peaker	Gas		51	01-Jan-11	El Paso Merchant Energy	CEC Website	San Mateo	17-Jan-02
Pegasus Energy	Peaker	Gas	4	180	01-Jan-11	Pegasus Power Partners	CEC	San Bernardino	17-Jan-02
Arco Watson	Peaker	Gas		96	01-Aug-03	BP	CEC		20-Jun-02
Kern Power Plant Restart		Gas		160	01-Jan-11	N. American Power	CEC	Kern	31-Jan-02
Spartan Peaker	Peaker	Gas		96	01-Jan-11	Spartan Power	CEC	Santa Clara	17-Jan-02
SMUD Combined Cycle 2	Combined	Gas		500	01-Jan-05	SMUD	CEC	Sacramento	20-Jun-02
Ocotillo Power I	Peaker	Gas		450	01-Jan-11	InterGen	CEC	Riverside	22-Jan-02
Redondo Beach		Gas		1000	01-Jan-11	AES	CEC Website	Los Angeles	31-Jan-02
Long Beach District		Gas		500	01-Oct-04	Enron	CEC Website	Los Angeles	31-Jan-02
Antelope	Combined	Gas		1000	01-Oct-04	Enron	CEC Website	Kern	31-Jan-02
Huntington Beach Modern. II		Gas		225	01-Jul-03	AES	CEC	Orange	20-Jun-02
Taft	Cogen	Gas		86	01-Jul-03	Berry Petroleum	CEC	Kern	20-Jun-02
High Desert 2	Combined	Gas		450	01-Jan-11		CEC Website	San Bernardino	20-Jun-02
South Star I			2	100	01-Sep-03	Texaco	CEC	Kern	20-Jun-02
Maxwell (Colusa)		Gas		600	01-Jul-04	Reliant	CEC Website	Colusa	16-May-02
Rio Linda/Elverta	Combined	Gas		560	01-Jan-11	Florida Power	CEC	Sacramento	31-Jan-02
Evergreen Concord		Gas		300	01-Jan-11		CEC Website	Contra Costa	31-Jan-02
Watsonville	Peaker	Gas		135	01-Jan-11	Calpine	CEC	Santa Cruz	30-Jan-02
Placerita	Cogen	Gas		50	01-Jan-11	Berry Petroleum	CEC	Los Angelos	31-Jan-02
Midway Buttonwillow	Peaker	Gas		49	01-Jan-11	Calpeak	CEC	Kern	31-Jan-02
Suisun 1-3	Peaker	Gas		141	01-Jan-11	Panda West	CEC	Solano	31-Jan-02
Port of Sacramento	Peaker	Gas		140	01-Jan-11	Ameresco	CEC	Yolo	31-Jan-02
Air Products	Peaker	Gas		180	01-Jan-11	Air Products	CEC	Sacramento	31-Jan-02
South Star II				100	01-Jan-11	Texaco	CEC	Kern	31-Jan-02
Lancaster Hanover	Peaker	Gas		86	01-Jan-11	Electricity Provider Inc	CEC	Los Angeles	31-Jan-02
GilroyPhase II	Peaker	Gas		135	01-Jan-11	Calpine	CEC Website	Santa Clara	30-Jan-02
NEVADA									
Boulder Valley	Combined	Gas		480	01-Jan-11	El Paso Merchant	NV PUC	Eureka	15-Jan-02
Steamboat Springs	Geothermal	Geothermal		30	01-Jan-11	SB Geo	NV PUC	Washoe	15-Jan-02

Facility	Technology	Fuel	# of Units	Output (MW)	Est Online Date	Company	Source	County	Last Updated
Arrow Canyon	Combined	Gas		575	01-Apr-04	Reliant	NV PUC	Clark	30-Jan-02
Meadow Valley	Combined	Gas		1191	01-Jan-11	PG&E NEG	NV PUC	Clark	30-Jan-02
Apex Industrial II	Combined	Gas		550	01-May-04	Mirant	NV PUC	Clark	30-Jan-02
Tortoise Power Plant	Peaker	Gas		100	01-Jan-11	Overton Power District	NV PUC	Clark	15-Jan-02
Crystal Generating Station	Combined	Gas		760	01-Jan-11	Calpine	NV PUC	Clark	15-Jan-02

Sources: California Energy Commission Website - July 9, 2002 and Nevada PUC

PROPOSED GENERATION PLANTS IN NEVADA
September 2002

NAME	MW	LOCATION	ANNOUNCED	PERMITS	CONSTRUCTION	PROPOSED ONLINE DATE
Las Vegas Cogeneration II Black Hills Energy	230 Combined Cycle	North Las Vegas Clark County 5 miles north of Las Vegas	APR 2000	Complete	Commenced MAY 2001	OCT 2002
Rye Patch Geothermal Project Presco Energy	12 Geothermal	Rye Patch Pershing County 40 miles west of Winnemucca	AUG 2000	Complete	Drilling Complete Unit in Place	1st Qtr. 2003
Apex Generating Station Mirant Corporation	550 Combined Cycle	Apex Industrial Park Clark County 20 miles north of Las Vegas	APR 2000	Complete	Commenced APR 2001	MAR 2003
Bighorn Reliant Energy	550 Combined Cycle	Primm Clark County 40 miles south of Las Vegas	APR 2001	Complete	Commenced OCT 2001	Summer 2003
Table Mountain Wind Project MNS Wind	90 Wind	Sandy Valley Clark County 40 miles south of Las Vegas	FEB 2001	Ongoing	Expected End-2002	DEC 2003
Silver Hawk Power Pinnacle West Energy	570 Combined Cycle	Apex Industrial Pak Clark County 20 miles north of Las Vegas	DEC 2000	Complete	Commenced AUG 2002	Mid-2004
Ivanpah Energy Center Diamond Generating	500 Combined Cycle	Goodsprings Clark County 30 miles south of Las Vegas	FEB 2002	Ongoing	Expected MAR 2003	MAR 2005
Copper Mountain Power Sempra Energy	500 Combined Cycle	Adjacent El Dorado Power Plant Clark County 20 miles southeast of Las Vegas	JUN 2000	Complete	Expected 1st Qtr. 2003	2nd Qtr. 2005
Blue Diamond Pumped Storage Blue Diamond Power Partners	400 Hydro Peaking	Blue Diamond Hill Clark County 5 miles west of Las Vegas	1990	Ongoing	Expected Mid-2003	Mid-2006

SUMMARY OF NEVADA
PROPOSED GENERATION PLANTS
September 2002

PROPOSED ONLINE DATE	UNDER CONSTRUCTION	PROPOSED	TOTAL
2002	230 MW	0 MW	230 MW
2003	1,100 MW	102 MW	1,202 MW
2004	570 MW	0 MW	570 MW
2005	0 MW	1,000 MW	1,000 MW
2006	0 MW	400 MW	400 MW
TOTAL	1,900 MW	1,502 MW	3,402 MW

TYPES OF GENERATION	UNDER CONSTRUCTION	PROPOSED	TOTAL
Combined Cycle	1,900 MW	1,000 MW	2,900 MW
Geothermal	0 MW	12 MW	12 MW
Pumped Storage	0 MW	400 MW	400 MW
Wind	0 MW	90 MW	90 MW
TOTAL	1,900 MW	1,502 MW	3,402 MW

PLANTS BY COUNTY	UNDER CONSTRUCTION	PROPOSED	TOTAL
Clark	1,900 MW	1,490 MW	3,390 MW
Pershing	0 MW	12 MW	12 MW
TOTAL	1,900 MW	1,502 MW	3,402 MW

DELAYED GENERATION PLANTS IN NEVADA
September 2002

NAME	MW	LOCATION	ANNOUNCED	PERMITS	CONSTRUCTION	PROPOSED ONLINE DATE
Apex Generating Station (2nd Phase) Mirant Corporation	550 Combined Cycle	Apex Industrial Park Clark County 20 miles north of Las Vegas	APR 2000	Complete	TBD	TBD
Arrow Canyon Reliant Energy	575 Combined Cycle	Republic Services Landfill Clark County 20 miles north of Las Vegas	OCT 2000	Ongoing	TBD	TBD
Boulder Valley Energy Center Newmont Mining / Partner TBD	480 Combined Cycle	Boulder Valley Eureka County 30 miles west of Elko	FEB 2001	Ongoing	TBD	TBD
EOPT Power Plant – TRI Center Environmental Oil Processing Tech.	30 Peaking	Tahoe Reno Industrial Center Storey County 20 miles east of Reno	MAY 2001	Complete	TBD	TBD
Meadow Valley Generating Station PG&E National Energy Group	1191 Combined Cycle	Moapa Clark County 45 miles northeast of Las Vegas	SEP 2000	Ongoing	TBD	TBD
Moapa Energy Facility Duke Energy	1200 Combined Cycle	Apex Industrial Park Clark County 20 miles north of Las Vegas	JUN 2000	Complete	Commenced OCT 2001	TBD
Moapa Paiute Energy Center Calpine Corporation	760 Combined Cycle	Moapa Indian Reservation Clark County 40 miles northeast of Las Vegas	JUL 2000	Ongoing	TBD	TBD
Toquop Energy Cogentrix	1100 Combined Cycle	Near Mesquite, NV Lincoln County 100 miles northeast of Las Vegas	AUG 2001	Ongoing	TBD	TBD
Washoe Energy Facility Duke Energy	540 Combined Cycle	Wadsworth Washoe County 30 miles east of Reno	JUN 2000	Ongoing	TBD	TBD

SUMMARY OF NEVADA
DELAYED GENERATION PLANTS
September 2002

TYPES OF GENERATION	TOTAL		COUNTY	TOTAL
Combined Cycle	6,396 MW		Clark	4,276 MW
Peaking	30 MW		Eureka	480 MW
			Lincoln	1,100 MW
			Storey	30 MW
			Washoe	540 MW
TOTAL	6,426 MW		TOTAL	6,426 MW

APPENDIX C
BIOLOGY FIELD SURVEY NOTES

Ivanpah Power Generation Project

Date of Field Visits: April 30, May 1, and May 2, 2002
Person Conducting Surveys: Dan Godec – SWCA, Inc.

Summary of Vegetation Communities, Rare Plant Surveys, & Wildlife Observed:

Vegetation Communities:

All vegetation communities in the project area are within the Mohave desertscrub biotic community, as described by Brown (1994). Below, I have broken out each of the different vegetation communities that are within the project area. Table 1 shows the UTM coordinates and/or general locations of these series. These coordinates are approximate in some cases, as there is typically a transitional zone between the different communities.

1. Creosote Bush – White Bursage (*Larrea tridentata – Ambrosia dumosa*) Community: This vegetation community is found at lower elevations, most commonly from the bottom to the edges of broad alluvial valleys and on low hills. It is dominated by creosote bush and white bursage. Other common plants in this community include big galleta grass (*Hilaria rigida*), white burrobrush (*Hymenoclea salsola*), diamond cholla (*Opuntia ramosissima*), silver cholla (*Opuntia echinocarpa*), ratany (*Krameria erecta*), Russian thistle (*Salsola tragus*), plantain (*Plantago* sp.), desert globemallow (*Sphaeralcea ambigua*), and Mediterranean grass (*Schismus barbatus*). Other, less common, species in this vegetation community include Mohave yucca (*Yucca schidigera*), beavertail prickly pear (*Opuntia basilaris*), joint fir (*Ephedra fasciculata*), wire lettuce (*Stephanomeria* sp.), desert marigold (*Baileya multiradiata*), skeletonweed (*Eriogonum deflexum*), Booth's evening primrose (*Camissonia boothii*) (see Photo7, roll 1), barrel cacti (*Ferocactus cylindraceus* var. *lecontei*), snakeweed (*Gutierrezia sarothrae*), fluffgrass (*Dasyochloa pulchella*), and Indian ricegrass (*Achnatherum hymenoides*). Near hills in the east end of Eldorado Valley, brittlebush (*Encelia farinosa*) and buckhorn cholla (*Opuntia acanthocarpa*) also occur (see photos 3 & 4 of roll 2). In some areas, diamond cholla, buckhorn cholla, silver cholla, and Mohave yucca are much more common (see photos 8 & 9 of roll 1). Other plants occur along medium to large washes in this community and include catclaw acacia (*Acacia greggii*), Cooper's wolfberry (*Lycium cooperi*), Anderson's wolfberry (*Lycium andersonii*), woolly brickellia (*Brickellia incana*) (see Photo 6, roll 1), desert willow (*Chilopsis linearis*), dock (*Rumex hymenosepalus*), squaw waterweed (*Baccharis sergiloides*), four-wing saltbush (*Atriplex canescens*), wooly-fruited bursage (*Ambrosia eriocentra*), and Palmer's penstemon (*Penstemon palmeri*). Teddy bear cholla (*Opuntia bigelovii*) was only found in these communities on south facing slopes in the lower basalt foothills of the eastern side of the McCullough Mountains in Segment 70 (See Photo 23, roll 1). At lower elevations with gravelly soils in the bottom of Ivanpah Valley and Eldorado Valley, this community is dominated by creosote bush, white bursage,

white burrobrush, and Mediterranean grass (see photo 1, roll 1 and photo 5, roll 2). In sandier areas within this community, big galleta grass is co-dominant with creosote bush and white bursage (see photo 2, roll 1 and photo 5, roll 1) or even more dominant than creosote bush (see photo 6, roll 2). Mediterranean grass is also common in those sandier areas.

2. Mixed Scrub-Mixed Succulent Community:
Although creosote bush, white bursage, and some of the other species found in the creosote bush – white bursage community occur in this vegetation community, they are far less common and the vegetation of mixed scrub-mixed succulent communities is more diverse, with several species not found in creosote bush – white bursage communities. In addition, the mixed scrub-mixed succulent communities are found at higher elevations and on higher hills, even as high as McCullough Pass. Common species include: Mohave yucca, ratany, joint fir (*Ephedra fasciculatum* and *Ephedra nevadensis*), flat-top buckwheat (*Eriogonum fasciculatum*), paper bag bush (*Salazaria mexicana*), buckhorn cholla, diamond cholla, silver cholla, spiny menodora (*Menodora spinescens*), fluffgrass, fiddleneck (*Amsinckia intermedia*), peppergrass (*Lepidium* sp.), goldeneye (*Viguiera deltoidea*), big galleta grass, white burrobrush, blackbrush (*Coleogyne ramosissima*), Joshua tree (*Yucca brevifolia*), desert trumpet (*Eriogonum inflatum*), and barrel cacti. Other less common species documented in these communities include catclaw acacia, snakeweed, narrowleaf goldenbush (*Ericameria linearifolia*), turpentine bush (*Ericameria laricifolia*), cottontop cactus (*Echinocactus polycephalus*), matted cholla (*Opuntia parishii*), Utah butterflybush (*Buddleja utahensis*), California brickellia (*Brickellia californica*), beavertail prickly pear, wire lettuce (*Stephanomeria* sp.), evening primrose (*Oenothera* sp.), desert globemallow, skeletonweed (*Eriogonum deflexum*), hedgehog cactus (*Echinocereus engelmannii*), coldenia (*Coldenia* sp.), shadscale saltbush (*Atriplex confertifolia*), desert marigold, Anderson's wolfberry, pincushion cactus (*Mammillaria tetrancistra*), mortonia (*Mortonia scabrella* var. *utahensis*), prince's plume (*Stanleya pinnata*), chia (*Salvia columbariae*), desert tobacco (*Nicotiana obtusifolia* var. *obtusifolia*), winterfat (*Krascheninnikovia lanata*), Mojave prickly pear (*Opuntia erinacea*), sandwort (*Arenaria* sp.), Heerman's buckwheat (*Eriogonum heermannii* var. *humilius*), Wright buckwheat (*Eriogonum wrightii*), cliffrose (*Purshia stansburiana*), desert stingbush (*Eucnide urens*), Palmer's penstemon, and purple sage (*Salvia dorrii*). Photo Photo 9, roll 1 shows an area of transition between creosote-bursage and mixed scrub-mixed succulent vegetation communities. Photos 10, 11, 12, 18, & 22 of roll 1 and Photo 2 of roll 2 show pictures of the various states of this community observed within the project area. Along washes in this community some other species occur including desert willow, Cooper's wolfberry, woolly brickellia, Apache plume (*Fallugia paradoxa*), and Two-tone beardtongue (*Penstemon bicolor* ssp. *bicolor* and *P. bicolor* ssp. *roseus*). Both subspecies of two-tone beardtongue have been found by others in the vicinity of the project area but were not able to be positively identified during my sight visits due to the lack of flowering of most penstemons in the area and because their leaves are quite similar to the more

common Palmer's penstemon. Two-tone beardtongue blooms a little later than Palmer's penstemon and so the locations of all *Penstemon* spp. encountered that were not blooming and identified as Palmer's penstemon were documented with a GPS unit (Provided in Table 2).

3. Blackbrush (*Coleogyne ramosissima*) Community:
Although these vegetation communities are common and widespread in the upper elevational limits of the Mohave desertscrub biotic community, the only area within the limits of this project that has a blackbrush dominated community is located in Segment 10 west of Crystal Pass (See Photo 19, roll 1). Other species that can be found in this blackbrush community include Mohave yucca, Joshua tree yucca, creosote bush, joint fir, Prince's plume, snakeweed, Indian ricegrass, Anderson's wolfberry, and spiny menodora. Russian thistle and desert marigold occur in disturbed areas within this community, such as along roads and in other areas where vegetation was previously cleared.

4. Desert Saltbush (*Atriplex polycarpa*) – Creosote Bush Community:
Within the project area, this vegetation community occurs on the alkaline soils north and south of Dry Lake in Eldorado Valley. This community occurs in Segments 110, 120, and 130. It begins approximately at approximately one mile west of Dry Lake and extends eastward along the northern and southern boundaries of Dry Lake to Highway 95. Within this community, desert saltbush and creosotebush are co-dominant. Other species that occur within this community include Mediterranean grass and fiddleneck, as well as some white bursage and rigid spiny herb (*Chorizanthe rigida*). See Photo 7, roll 2 for a picture of this vegetation community and see Photo 8, roll 2 for a picture of desert saltbush.

5. Stabilized Dune Community:
This vegetation community occurs east of Highway 95 in Segments 120 and 130. Within Segment 120, it occurs in relatively small patches near Highway 95, beginning about a half mile east of that highway. At about 692030E, 3978076N, this community becomes relatively constant along Segment 120 until its junction with Segment 130. This community also occurs throughout Segment 140 and the Mead Substation area and along Segment 130 from its junction with Segment 120 to approximately one half mile southwest of that point. The dominant plants of this community are creosote bush, dune primrose (*Oenothera deltoides*), desert dicoria (*Dicoria canescens*), and Russian thistle. See Photo 9, Roll 2 for a photo of this plant community. Photo 10 of Roll 2 shows a close up of the "bird cages" of dead stems of dune primrose that are common in this community.

6. Saltcedar (*Tamarix* sp.) – Cattail (*Typha* sp.) Riparian Community:
This vegetation community is present along two earthen canals with running water crossed by Segment 120. The UTM coordinates of these crossings are 692827E, 3977947N and 692732E, 3977995N. See Photo 11 of Roll 2 for a photo of this community. The vegetation along the portions of the canals crossed

by this project were dominated by saltcedar and cattail, with a few large creosote bushes present at the outskirts of these communities.

Table 1. Vegetation Community Location Information

Vegetation Community	Segment Where It Occurs	Beginning Locations (Approximate)	Ending Locations (Approximate)	Other Comments
Creosote Bush –White Bursage	Segment 30	645200E, 3959000N	Jct. With Segment 30	
Creosote Bush –White Bursage	Alt.Access Rd. From IEC Plant Site	645350E, 3959150N	Highway 161	
Creosote Bush –White Bursage	Segment 50	Jct. w/ Segment 30	Jct. w/ Segment 60	Occupies Entire Segment
Creosote Bush –White Bursage	Segment 60	Jct. w/ Segment 50	662500E, 3958300N	
Creosote Bush –White Bursage	Segment 70	Jct. w/ Segment 50	660500E, 3954550N	
Creosote Bush –White Bursage	Segment 60	668800E, 3958800N	Jct. w/ Segment 90	
Creosote Bush –White Bursage	Segment 70	669500E, 3957300N	Jct. w/ Segment 80	
Creosote Bush –White Bursage	Segment 80	All	All	
Creosote Bush –White Bursage	Segment 90	All	All	
Creosote Bush –White Bursage	Segment 110	Jct. with Segment 120	681491E, 3966534N	
Creosote Bush –White Bursage	Segment 120	Jct. with Segment 90	681491E, 3967700N	
Creosote Bush –White Bursage	Segment 120	Jct. with Hwy. 95	689000E, 3978000N	
Creosote Bush –White Bursage	Segment 130	Jct. with Hwy. 95	692000E, 3976400N	
Mixed Scrub – Mixed Succulent	Table Mountain Substation	N/A	N/A	Occupies Entire Site
	IEC Plant Site	N/A	N/A	Occupies Entire Site
Mixed Scrub – Mixed Succulent	Segment 10	Crystal Pass	Jct. w/ Segment 20	
Mixed Scrub – Mixed Succulent	Segment 10	639600E, 3965000N	640500E, 3963800N	
	Segment 20	All	All	

Mixed Scrub – Mixed Succulent	Plant Site Access Opt #2	All	All	
	Plant Site Access Opt #3	All	All	
Mixed Scrub – Mixed Succulent	Segment 30	Jct. With Segment 20	645200E, 3959000N	
Mixed Scrub – Mixed Succulent	Access Rd. From Hwy 161 To IEC Plant Site	All	All	
Mixed Scrub – Mixed Succulent	Alternate Access Rd. To IEC Plant Site	IEC Plant Site	645350E, 3959150N	
Mixed Scrub – Mixed Succulent	Segment 60	662500E, 3958300N	668800E, 3958800N	
Mixed Scrub - Mixed Succulent	Segment 70	661500E, 3955150N	669500E, 3957300N	
Blackbrush	Segment 10	640500E, 3963800N	641350E 3963900N,	Ends at Crystal Pass
Desert Saltbush - CreosoteBush	Segment 130	Jct. with Segment 110	Jct. with Hwy. 95	
Desert Saltbush – CreosoteBush	Segment 120	681491E, 3967700N	Jct. with Hwy. 95	
Desert Saltbush – CreosoteBush	Segment 110	681491E, 3966534N	Jct. with Segment 130	
Stabilized Dune	Segment 120	689000E, 3978000N	Jct. with Segment 140	
Stabilized Dune	Segment 130	692000E, 3976400N	Jct. with Segment 140	
Stabilized Dune	Segment 140	All	All	
Saltcedar – Cattail Riparian	Segment 120	692732E, 3977995N	692732E, 3977995N	Segment crosses canal
Saltcedar – Cattail Riparian	Segment 120	692827E, 3977947N	692827E, 3977947N	Segment crosses canal

Rare Plant Surveys:

I conducted rare plant surveys along the access roads, alternate access roads, and transmission line ROWs, as well as within the boundaries of the proposed substation sites. The species I was primarily looking for have been documented within the vicinity of the project area by the Nevada Natural Heritage Program (NNHP) and included:

white-margined penstemon (*Penstemon albomarginatus*), yellow two-tone beardtongue (*Penstemon bicolor* ssp. *bicolor*), rosy two-tone beardtongue (*Penstemon bicolor* ssp. *roseus*), Clokey buckwheat (*Eriogonum heermannii* var. *clokeyi*), Mohave milkvetch (*Astragalus mojavensis* var. *mohavensis*), Nye milkvetch (*Astragalus nyensis*), Spring Mountains milkvetch (*Astragalus remotus*), and sheep fleabane (*Erigeron ovinus*).

Based on the results of these rare plant surveys, only yellow two-tone beardtongue (*Penstemon bicolor* ssp. *bicolor*) and rosy two-tone beardtongue (*P. bicolor* ssp. *roseus*) are potentially present within the project area. Both subspecies of two-tone beardtongue have been found by others in the vicinity of the project area. However, these plants were not able to be positively identified during my sight visits due to the lack of flowering of most penstemons in the area and because their leaves are quite similar to the more common Palmer's penstemon. Two-tone beardtongue blooms a little later than Palmer's penstemon and so the locations of all *Penstemon* spp. encountered that were not blooming and identified as Palmer's penstemon were documented with a GPS unit (Provided in Table 2).

Other rare plant species listed by the NNHP as occurring at similar elevations in southern Clark County were also searched for during these rare plant surveys. These plants included: Blue Diamond cholla (*Opuntia whipplei* var. *multigeniculata*), Las Vegas bearpoppy (*Arctomecon californica*), white bearpoppy (*Arctomecon merriamii*), black woollypod (*Astragalus funereus*), half-ring milkvetch (*Astragalus mohavensis* var. *hemigyrus*), Pahrump Valley buckwheat (*Eriogonum bifurcatum*), and others. None were located during the surveys.

Table 2. Locations of *Penstemon* sp. (Potential two-tone beardtongue locations)

Location (Using NAD27)	**Segment Number/Road**	**Comments**
642942E, 3964079N	IEC Plant Site Access Road From Highway 161	~20-30 plants in wash and along road at wash
642912E, 3964153N	IEC Plant Site Access Road From Highway 161	Couple plants in wash on W. side of road
642919E, 3964117N	IEC Plant Site Access Road From Highway 161	Couple plants in wash on W. side of road
642999E, 3863909N	IEC Plant Site Access Road From Highway 161	Several plants in wash
642990E, 3863956N	IEC Plant Site Access Road From Highway 161	Several plants in wash
643138E, 3964787N to 643157E, 3964892N	IEC Plant Site Access Road From Highway 161	Several plants in wide wash and roadside
643211E, 3961316N	Vicinity of Plant Site Access Option 3 road	Few plants in wash
640373E, 3964455N	Segment 10	Few plants along road
647787E, 3959236N	Access road from Hwy 161	Couple plants along road
647094E, 3959106N	Access road from Hwy 161	Couple plans along road near wash
648417E, 3959319N	Access road from Hwy 161	Several plants in wash

648008E, 3959251N	Access road from Hwy 161	Couple plants in wash
647800E, 3959230N	Access road from Hwy 161	Several plants along road
647442E, 3959197N	Access road from Hwy 161	Couple plants in wash
647152E, 3959114N	Access road from Hwy 161	Few in wash ~ 30 ft. downstream of road
646972E, 3959065N	Access road from Hwy 161	Several plants along road and in wash
647992E, 3959247N	Access road from Hwy 161	Couple plants along road
649938E, 3959795N	Access road from Hwy 161	Several plants in wash
646121E, 3958328N	Segment 30	A few plants in wash
645738E, 3958626N	Segment 30	A few plants in wash
645493E, 3958813N	Segment 30	A few plants in wash
663554E, 3958193N	Segment 60	A few plants in wash; prob. outside of project area
664096E, 3958520N	Segment 60	A few plants in wash; prob. outside of project area
664957E, 3958829N	Segment 60	Several plants in wash; prob. outside of project area
From 666136E, 3958491N To 671013E, 3958847N	Segment 60	A continuous population along a large braided wash and along an adjacent road
668470E, 3956599N	Segment 70	Several plants in wash; prob outside of project area
666808E, 3956359N	Segment 70	Several plants along road
665488E, 3956039N	Segment 70	Several plants along road in McCullough Pass area

Wildlife Observed:

During the course of the rare plant and vegetation community surveys I observed several species of animals including: white-tailed antelope ground squirrel (Ammospermophilus leucurus), side blotched lizard (Uta stansburiana), zebra-tailed lizard (Callisaurus draconoides), black-tailed jackrabbit (Lepus californicus), common raven, ash-throated flycatcher, black-tailed gnatcatcher, coyote (Canis latrans), Great Basin whiptail (Cnemidophorus tigris), desert cottontail (Sylvilagus audubonii), verdin, black-throated sparrow, American kestrel, rock wren, horned lark, red-tailed hawk, yellow-rumped warbler, and prairie falcon. A possible prairie falcon eyrie was located on a cliff north of Segment 60 at 665506E, 3958846N. A group of 13 bighorn sheep were seen and photographed (See Photo 24, Roll 1) near Segment 70 at 666942E, 3956369N, east of McCullough Pass. This group of sheep consisted of two rams, eight ewes, and three lambs. Bighorn sheep scat was also present along Segment 60 in the area where the prairie falcon was observed.

IVANPAH POWER GENERATING PROJECT

WILDLIFE

SURVEY AREA..
The proposed project is located in Clark County, Nevada. **(Parsons Will Provide)**

MATERIALS AND METHODS
Special status wildlife species that could potentially occur in the project area were determined from a Nevada Natural Heritage Program data base search (April 15, 2002) requested by Parson's Engineering Science Inc., and a review of a list of wildlife Species of Concern compiled by the United States Fish and Wildlife Service (USFWS) for Clark County.

SWCA biologists conducted biological field surveys for desert tortoises and other wildlife species over 100% of the area encompassing the proposed project. Field surveys were conducted from May 1 through 7 and May 14 through 23. The survey areas included the transmission rights-of-way, the proposed plant site for the Ivanpah Energy Center, alternate access roads from the transmission right-of-way and the plant site (Segment 20), a linear phone line, and an access road that will be used during construction.

Approximately 50 miles of the transmission rights-of-way were surveyed for desert tortoise and other wildlife species. In addition, the survey encompassed approximately nine miles of Segment 70, which was later removed from the project area. Approximately nine miles of access roads in the westernmost portion of the project area west of Highway 15 were surveyed as well as approximately ¼ mile of a linear phone line route (UTM 0643107 3964689). The three alternate routes of Segment 20 were surveyed for a 500-foot clearance (250 feet on either side of a staked centerline). A total of **NUMBER** acres were surveyed. The areas surveyed are depicted in **Figure to be provided.**

Protocol surveys for the desert tortoise consisted of the biologists walking parallel transects approximately 30 feet apart. Using a hand-held Garmin 12 GPS unit, the UTM coordinates of any desert tortoise directly observed were recorded, and if it could be determined, the tortoise's sex, approximate carapace length, and whether the individual exhibited signs of Upper Respiratory Tract Disease (URTD).

The UTM coordinates of desert tortoise skeletal remains were also recorded. When it could be determined, the maximum carapace length and gender of the tortoise remains was recorded. In some cases, live tortoises and tortoise skeletal remains had numbers or notches on their shells. The numbers and the scute location of the notches were recorded.

The UTM coordinates of tortoise burrows were also recorded. Two classes of burrows were recorded: active and inactive burrows. Active burrows were defined as those that a tortoise could readily use that would completely cover its shell. Inactive burrows were defined as burrows that were partially collapsed or filled in and would require the tortoise

to excavate the burrow prior to use. (Within the GPS unit's data dictionary, active burrows were denoted by the letter B, while inactive burrows were denoted by the letters BO.) In addition to recording the UTM coordinates, active burrows were marked with orange flagging to facilitate their future re-location. The dimensions (width, height, and approximate length) of active burrows were always recorded. The width of inactive burrows was noted, and when possible, the height was recorded. Caliche caves that could potentially be used as den sites were recorded as "BO" in the GPS unit, but were noted differentially in the field notes. These sites were also marked with orange flagging to facilitate their future re-location.

The presence of scat in the vicinity of a burrow was recorded on the field data sheets, along with the approximate dimensions of the scat. When scat was found away from burrows, its presence and dimensions were recorded in the field notes, but its location was not recorded via GPS.

Twenty-eight equilateral Bureau of Land Management (BLM) "tortoise triangles" located along the transmission right-of-ways were walked to assess the presence of desert tortoises and their signs (e.g., burrows, scat, tracks). The triangles were 1.5 miles long and 30 feet wide. The hand-held GPS units were used to determine the transect length per side of a triangle and a compass was used for a triangle's bearings. The UTM coordinates of tortoises and their sign were recorded in the GPS unit. The data recorded for each triangle included the number of tortoises, burrows, and scat. Burrow dimensions and aspect were also recorded. The biologist also counted the number of times a transect line intersected with roads, off-highway-vehicle (OHV) tracks, garbage, and woodrat middens. The number of ravens observed was noted as well as whether cattle or evidence of cattle use was present.

While conducting protocol surveys for the desert tortoises, observations of other wildlife species and/or their sign (e.g., tracks, scat) were recorded. The UTM coordinates of kit fox burrows were recorded in addition to notes on whether the burrows were active or inactive, and whether scat, tracks, or prey remains were present. Kit fox burrows can also be used by burrowing owls and burrows were assessed for signs of use by owls (e.g., feathers, prey remains, scat, white-wash).

SPECIES ACCOUNTS

GENERAL WILDLIFE

The wildlife species observed in the project area are listed in Table 1 and include 17 species of birds, 8 species of mammals, and 10 species of reptiles. Wildlife species were directly observed or were detected via their sign such as scat, tracks, or burrows. A potential prairie falcon eyrie was observed on a cliff face north of Segment 60 (665506E, 3958846N). White-wash was noted at this site, but falcon or young were not observed.

Table 1. Wildlife species directly observed in the project area or detected via sign such as scat, tracks, or burrows.

Common Name	Scientific Name
REPTILES	
Desert tortoise	*Gopherus agassizii*
Western whiptail	*Cnemidophorus tigris*
Zebra-tailed lizard	*Callisaurus dracnoides*
Side-blotched lizard	*Uta stansburiana*
Desert collared lizard	*Crotaphytus insularis*
Long-nosed leopard lizard	*Gambelia wislizenii*
Chuckwalla *	*Sauromalus obesus*
Desert short-horned lizard	*Phrynosoma douglassi*
Desert horned lizard	*Phrynosoma platyrhinos*
Coachwhip	*Masticophis flagellum*
BIRDS	
American kestrel	*Falco sparverius*
Golden eagle	*Aquila chrysaetos*
Red-tailed hawk	*Buteo jamaicensis*
Common raven	*Corvus corax*
Mourning dove	*Zenaida macroura*
Greater roadrunner	*Geococcyz californianus*
Black-throated sparrow	*Amphispiza bilineata*
Yellow-rumped warbler	*Dendroica coronata*
Rock wren	*Salpinctes obsoletus*
Verdin	*Auriparus flaviceps*
Horned lark	*Eremophila alpestris*
Ash-throated flycatcher	*Myiarchus cinerascens*
Black-tailed gnatchcatcher	*Polioptila melanura*
Common poorwill	*Phalaenoptilus nuttallii*
Western tanager	*Piranga ludoviciana*
Broad-tailed hummingbird	*Selasphorus platycercus*
White-throated swift	*Aeronautes saxatalis*
MAMMALS	
Desert woodrat	*Neotoma lepida*
White-tailed antelope ground squirrel	*Ammospermophilus leucurus*
Kangaroo rat	*Dipodomys spp.*
Black-tailed jackrabbit	*Lepus californicus*
Desert cottontail	*Sylvilagus audubonii*
Kit fox *	*Vulpes velox*
Coyote	*Canis latrans*
Desert bighorn sheep	*Ovis canadensis nelsoni*

* Detected via sign such as scat, tracks, and/or burrows.

Migratory Birds

The Migratory Bird Treaty Act (MBTA) makes it unlawful to take, kill, or possess migratory birds. Most avian species are protected by the MBTA with the exception of a few species, typically those that are non-native, such as the starling. Potential adverse impacts to migratory birds could occur if project activities take place during the breeding season in spring and early summer. Alteration of habitat could result in the direct loss of bird nests, eggs, or young. If habitat alteration occurs late enough in the breeding season, individuals might not be able to re-nest, which would result in the loss of their reproductive output. This potential impact can be avoided by restricting habitat alteration (e.g., blading) to winter or fall when birds are not breeding.

Threatened, Endangered, and Proposed Species

One federally listed threatened species, the desert tortoise (*Gopherus agassizii*) is known to occur in the project area. No federally listed endangered or proposed wildlife species are known to occur in the project area.

As defined by the Endangered Species Act of 1973 (ESA), a threatened species is any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. An endangered species is any species that is in danger of extinction throughout all or a significant portion of its range. Proposed species are those that are proposed in the Federal Register by the USFWS to be listed as threatened or endangered.

Desert Tortoise

Project data are still being analyzed – awaiting info from USFWS.

Species of Concern

Species of Concern are taxa for which existing information indicated may warrant listing, but for which substantial biological information to support a proposed rule is lacking. Species designated as species of concern have no regulatory status. However, consideration in the planning process may assist in developing alternatives to avoid conflicts with their conservation. Therefore, the species of concern that could potentially occur in the project area are addressed in this document. The special status species that could occur in and near the project area are discussed below.

Desert Bighorn Sheep

The desert bighorn sheep is a managed big game species by the Nevada Division of Wildife (NDOW). Desert bighorn sheep were observed in the McCullough Range on two occasions. The observed animals consisted of three rams, nine ewes; and five rams, twenty-one ewes, and three lambs. In both cases, the sheep were observed north of Segment 60, adjacent to the existing transmission line road. Desert bighorn scat was noted in the upper elevations in the vicinity of tortoise triangle 13. A cave that could be used for lambing (both tracks and scat were present) is located north of the triangle.

Desert Kit Fox

The desert kit fox is considered a sensitive species by the BLM and a furbearing species by the Nevada Department of Wildlife (NDOW). Kit fox burrows were noted throughout the project area and their locations were recorded with the GPS units. Burrows in the vicinity of Segment 130 had evidence of previous use as natal dens. Few burrows showed signs of recent use. Current sign (e.g., tracks) was noted only at burrows in Segment 130.

BATS

Several species of bats could occur in the general vicinity of the project area and are discussed below. No surveys for bats using mist nests or ultrasonic bat detectors were conducted in or near the project area. However, a bat (species unknown) was observed flying at 1115 hours on 3 May in the vicinity of Segment 20 and Segment 10.

Potential roost sites such as rock outcrops (e.g., Crystal Pass (Segment 10), McCullough Range (Segment 60)), and mapped and unmapped mine features (e.g., adits), are located in the project area. The mine adits are situated in the westernmost portion of the project area in the vicinity of Segment 10. Lighting was inadequate to determine whether guano was present in the adits. The UTM coordinates of the adits were recorded (see Table 2) and are shown on the project survey map(s).

Table 2. Locations of mine adits.

Location (Using NAD27)	Segment Number	Vertical/Horizontal

Spotted bat

The spotted bat is a federal Species of Concern. It has been found in a variety of habitats including ponderosa pine, pinyon-juniper forests, desert scrub, and open pasture and hay fields (Leonard and Fenton 1983). They are found most often in dry, rough desert terrain (Watkins 1977). Spotted bats roost alone in rock crevices high up on steep cliff faces. Critical roosting sites are cracks and crevices from 0.8 to 2.2 inches in width in limestone or sandstone cliffs (USDA 1991). There is speculation that they might also roost behind loose tree bark. Spotted bats feed mainly on moths. Potentially suitable roosting habitat is present in the Crystal Pass area (Segment 10) and in the McCullough Range (Segment 60).

Small-footed Myotis

The small-footed myotis is a federal Species of Concern and a BLM Nevada special status species. It occurs in a wide variety of habitats over its range, but mostly in forest areas, including pinyon-juniper. When suitable roost sites are available, this species is found in semiarid shrublands, sage, chaparral, and even agricultural areas (Manning and Jones 1989). In Nevada, specimens have been collected over mountain streams fringed with deciduous trees (Hall 1946). Their known elevational range is from sea level to 8,500 feet. This species is an opportunistic insect-eater. In Idaho, it has been found roosting with *P. townsendii* (Davis 1939). Small-footed myotis could potentially occur in the project area.

Long-eared Myotis

The long-eared myotis is a federal Species of Concern. It occurs in coniferous forests of high mountains. It roosts in buildings, caves, mines, and under tree bark (Whitaker 1980). Small nursery colonies of 10 - 30 bats form in buildings and other roosting sites. Small moths are the primary prey species, along with other insects such as flies and beetles. Suitable habitat is not present in the project area.

Fringed Myotis

The fringed myotis is a federal Species of Concern and a BLM Nevada special status species. It primarily occurs at middle elevations (3700 to 6500 feet) in desert, grass, and woodland habitats, but is found to 8500 feet in spruce-fir habitats in New Mexico (O'Farrel and Studier 1980). Roost sites have been found in caves, mine tunnels, and old buildings. This species feeds primarily on beetles. Fringed myotis could potentially occur in the project area.

Long-legged Myotis

The long-legged myotis is a federal Species of Concern. It is mainly a coniferous forest bat, although it may also be found in riparian and desert habitats in some areas. This species uses a variety of roosts including trees, crevices, and buildings. It occupies an elevational range from 200 feet to more than 10,000 feet, but is most often found between 6,000 to 9,000 feet (Warner and Czaplewski 1984). Caves and mine tunnels are used as hibernacula (Schowalter 1980). Long-legged bats feed primarily on small moths but also eat other small insects, such as flies, termites, and small beetles. This species could potentially occur in the project area.

Yuma myotis

The Yuma myotis is a federal Species of Concern. This bat is closely associated with water and is always found near ponds, lakes, or streams (Whitaker 1980). This species often roosts in old buildings. Caves, mines, buildings, and bridges are used as nursery colonies and daytime roost sites. Midges, moths, termites, and other small insects are its principal foods. The Yuma myotis feeds by flying very low over the surface of water. This species could potentially occur in the project area.

Big Free-tailed Bat

The big free-tailed bat is a federal Species of Concern and a BLM Nevada special status species. Roosting habitat for this species includes crevices in cliffs, caves, and abandoned buildings. Large moths are their primary food, but they also prey on a variety of other insects. This species could potentially occur in the project area.

Townsend's big-eared bat

Townsend's big-eared bat is a federal Species of Concern and a BLM Nevada special status species. It ranges through North America from British Columbia to central Mexico, with isolated populations reaching the Ozarks and Appalachia (Pierson et al. 1991). This species occurs in juniper-pine forests, shrub-steppe grasslands, deciduous forests, and mixed coniferous forests from sea level to 10,000 feet in elevation (USDA 1991). Townsend's big-eared bats roost primarily in caves or cave analogs such as old mine shafts, but they have

also been known to use rocky outcrops and old buildings (Pierson et al. 1991). They prefer to roost in the dark, but have also been recorded roosting in dimly lit areas (Kunz and Martin 1982). In addition, tree cavities and crevices within a thick platey bark structure are used as roosting areas. Although this species occurs in a variety of habitats and appears to be an adaptable forager, it is generally though to be a moth specialist (Kunz and Martin 1982).

In winter, most individuals roost singly, although some form clusters of a few to several dozen individuals. In summer, females roost with their young in nursery roosts in warm parts of caves. The roosts seldom exceed 100 adults. Maternity colonies break up in August. Males and non-breeding females roost alone (Kunz and Martin 1982). According to Pierson et al. (1991) and Brown and Berry (1991), mine shafts and adits are the most important roosting habitat for western big-eared bats, and should be protected from human disturbance where possible. Potentially suitable habitat for this species is present in Segment 10 in the westernmost portion of the project area.

Burrowing Owl

The burrowing owl is listed as a federal Species of Concern, a BLM Proposed Nevada Special Status Species, and is protected under the Migratory Bird Treaty Act (MBTA). This small ground-nesting owl is found in desert washes, alkali scrub, and desert riparian/riverine habitats. It also inhabits fields and grazing land, and cut banks along roads and washes (Ryser 1985). Burrowing owls nest in abandoned mammal burrows (e.g., ground squirrel, badger, coyote, and kit fox), which they enlarge and excavate (Herron et al. 1985). They also use abandoned desert tortoise burrows. This species preys primarily on insects, but also eats small rodents, reptiles, and amphibians. Because they are active during both the day and night, burrowing owls are easy to observe (Haug et al. 1993). Burrowing owls can be observed perched at or near their burrows during the day and forage in the morning and evening hours. During the hottest part of the day, they take cover in their nest.

This species has a tendency to colonize and breeding colonies of up to 12 pairs are common. Courtship typically begins in April. A female lays an average of five to nine eggs, although a clutch might contain between four to eleven eggs. The eggs are incubated for approximately 21 days. By early June, use of burrows becomes increasingly obvious when the young become active near the burrow entrance. Insect parts, regurgitated pellets, and thrown-up dirt are typically present.

Suitable habitat for the burrowing owl is present in the project area. However, no burrowing owls or their sign (e.g., burrows, scat, feathers) were observed.

Gambel's Quail

Gambel's quail is designated as a BLM Species of Concern. It inhabits desert scrub dominated by desert hackberry, mesquite, catclaw, buckhorn and cholla catctus; chaparral, and riparian habitat (USDA 1991). Preferred roosting habitat is dense shrubs or low trees. Roost sites usually occur in close proximity to brushy escape cover and succulent vegetation. Seeds and leafy vegetation comprise most of the quail's diet, but some insects are consumed during the nesting season. Gambel's quail are non-migratory. This species forms large coveys from 20 to more than 100 birds. In February or March, pairs leave the

covey and disperse to nest. Nests are scratched depressions on the ground. Annual movements of a covey encompass an area of less than one mile.

Potentially suitable habitat is present in the first three miles of Segment 10 in the westernmost portion of the project corridor. However, preferred habitat is not typically present in the project area and Gambel's quail were not observed during the field surveys.

Phainopepla

The phainopepla is a federal Species of Concern and is a BLM sensitive species. In deserts, the phainopepla primarily occurs in washes, riparian areas, and other habitats that support a brushy growth of mesquite and paloverde (USDA 1991). This species has two broods and possibly three. It nests early in the desert, then moves to moist habitat and re-nests (Erhlich et al. 1988). Mistletoe berries are an important dietary component and individuals defend clumps of mistletoe from other avian species.

Mistletoe was noted on the catclaw in the westernmost portion of the project area, however other important habitat components, such as brushy growth, are not present in the project area. Suitable habitat is not present in the project area and phainopepla were not observed during the field surveys.

Banded Gila Monster

The banded gila monster is listed as a federal Species of Concern, a Nevada BLM sensitive species, and is protected under Nevada state law. Preferred habitat for gila monsters is gravelly and sandy soils, especially in areas with shrubs and some moisture (Behler and King 1979). Gila monsters occur under rocks, in burrows of other animals, and occasionally in holes it digs itself. This venomous lizard preys on small mammals, birds, and eggs. The banded gila monster is primarily nocturnal, although it is active on warm spring days. This species was not observed in the project area, however surveys were not conducted at night, nor were rocks turned over to search for gila monsters. The project area is within the known range of the banded gila monster and potentially suitable habitat is present.

Western chuckwalla

The western chuckwalla is a federal Species of Concern and a BLM Nevada Special Status Species. The range of this species includes southeastern California, southern Nevada, southwestern Utah, western Arizona, and northeastern Baja California. The chuckwalla occurs in rocky outcroppings in desert regions. When frightened, the chuckwalla tightly wedges itself into a rocky crevice by inflating its lungs up to three times their normal breathing capacity. Once inflated, a chuckwalla is almost impossible to pull out. This herbivorous lizard feeds on the leaves of shrubs, buds, flowers, in particular the globe mallow, and fruit.

Chuckwalla were detected via sign (i.e., scat) in the following three locations in the project area: Crystal Pass area (Segment 10), southeast of Crystal Pass (middle section Segment 20), and in the McCullough Range (Segment 60). Suitable habitat is not present in other portions of the project area.

APPENDIX D

SENSITIVE SPECIES IN MANAGEMENT AREAS OF CLARK COUNTY, NEVADA

NATURAL HERITAGE PROGRAM SPECIES RECORDED WITHIN PROJECT AREA

U.S.FISH AND WILDLIFE SERVICES – LISTED SPECIES AND SPECIES OF CONCERN THAT MAY OCCUR WITHIN THE PROPOSED IVANPAH ENERGY CENTER PROJECT, CLARK COUNTY, NC

COVERED SPECIES CONSERVATION EVALUATIONS

Species	Conserved (IMAs, LIMAs)	Potential Indirect Impacts (MUMAs)	Potential Direct Impacts (UMAs)[1]	Management	Rationale for Coverage	Measurable Biological Goals
Silver-haired bat *Lasionycteris noctivagans*	93% of potential habitat	6% of potential habitat	2% of potential habitat	USFS SMNRA USFWS (DNWR) BLM Red Rock Cyn NCA	North American species, occurring in Clark Co primarily at high elevations. 93% of primary habitat in IMAs and LIMAs; management actions in SMNRA through the CA and on DNWR.	• No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs • Maintain stable or increasing population numbers
Long-eared myotis *Myotis evotis*	97% of potential habitat	7% of potential habitat	1% of potential habitat	USFS SMNRA USFWS (DNWR) BLM Red Rock Cyn NCA BLM RMP	Western North American species, occurring in Clark Co primarily at high elevations. 97% of primary habitat in IMAs and LIMAs; management actions in SMNRA through the CA and on DNWR.	• No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs • Maintain stable or increasing population numbers
Long-legged myotis *Myotis volans*	93% of potential habitat	6% of potential habitat	2% of potential habitat	USFS SMNRA USFWS (DNWR) BLM Red Rock Cyn NCA	Western North American species, occurring in Clark Co primarily at high elevations. 93% of primary habitat in IMAs and LIMAs; management actions in SMNRA through the CA and on DNWR.	• No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs • Maintain stable or increasing population numbers
Palmer's chipmunk *Tamias palmeri*	97% of potential habitat	none	3% of potential habitat	USFS SMNRA	Spring Mtns endemic. 97% of habitat in IMAs and LIMAs; management actions in SMNRA through the CA.	• No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs • Maintain stable or increasing population numbers
American peregrine falcon *Falco peregrinus anatum* Endangered (delisted 8/99)	60% of potential habitat	30% of potential habitat	<5% of potential habitat	BLM RMP NPS GMP NDOW (Overton WMA) USFWS (DNWR)	Southern North American species. 90% of habitat in IMA, LIMA, and MUMAs. Management and monitoring of eyries by USFWS and NDOW; with specific monitoring by NPS & USFS.	• Monitor and protect existing eyrie sites on private, state, and Federal lands • Maintain stable or increasing population numbers
Yellow-billed cuckoo *Coccyzus americanus*	24% of potential habitat	30% of potential habitat	46% of potential habitat	BLM RMP NPS GMP NDOW (Overton WMA)	Riparian dependent species of North America. Actions proposed for southwestern willow flycatcher will provide adequate management. Protection of additional suitable habitat on Virgin & Muddy Rivers and Las Vegas Wash.	• No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs • Maintain stable or increasing population numbers

COVERED SPECIES CONSERVATION EVALUATIONS
(continued)

Species	Conserved (IMAs, LIMAs)	Potential Indirect Impacts (MUMAs)	Potential Direct Impacts (UMAs)[1]	Management	Rationale for Coverage	Measurable Biological Goals
Vermilion flycatcher *Pyrocephalus rubinus*	25% of potential habitat	29% of potential habitat	46% of potential habitat	BLM RMP NPS GMP NDOW (Overton WMA)	Riparian dependent species of southwestern US and Mexico. Actions proposed for southwestern willow flycatcher will provide adequate management. Protection of additional suitable habitat on Virgin & Muddy Rivers and Las Vegas Wash.	• No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs • Maintain stable or increasing population numbers
Phainopepla *Phainopepla nitens*	28% of potential habitat	48% of potential habitat	26% of potential habitat	BLM RMP NPS GMP NDOW (Overton WMA) USFWS (DNWR)	Northernmost edge of species range in southwestern US and Mexico. 10,200 ac (74%) of potential habitat in Clark Co and all known key populations in IMAs or MUMAs (Newberry Mtns, Moapa, Corn Creek, Sandy Valley); BLM specific management plan for mesquite in MUMAs.	• No net unmitigated loss or fragmentation of habitat in IMAs & MUMAs • Maintain stable or increasing population numbers in key areas
Southwestern willow flycatcher *Empidonax traillii extimus* **Federal Endangered**	24% of potential habitat	30% of potential habitat	46% of potential habitat	USFWS BLM RMP NPS GMP NDOW (Overton WMA)	Riparian dependent species of southwestern US and northwestern Mexico. MSHCP provides mechanisms to protect and manage additional suitable habitat on the Virgin & Muddy Rivers and Las Vegas Wash as defined by the AMP.	• No net unmitigated loss or fragmentation of occupied habitat • Maintain stable or increasing population numbers
Summer tanager *Piranga rubra*	24% of potential habitat	30% of potential habitat	46% of potential habitat	BLM RMP NPS GMP NDOW (Overton WMA)	Riparian dependent species of southern US and Mexico. Actions proposed for southwestern willow flycatcher will provide adequate management. Protection of additional suitable habitat on Virgin & Muddy Rivers and Las Vegas Wash.	• No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs • Maintain stable or increasing population numbers

COVERED SPECIES CONSERVATION EVALUATIONS
(continued)

Species	Conserved (IMAs, LIMAs)	Potential Indirect Impacts (MUMAs)	Potential Direct Impacts (UMAs)[1]	Management	Rationale for Coverage	Measurable Biological Goals
Blue grosbeak *Guiraca caerulea*	24% of potential habitat	30% of potential habitat	46% of potential habitat	BLM RMP NPS GMP NDOW (Overton WMA)	Riparian dependent species of southern US and Mexico. Actions proposed for southwestern willow flycatcher will provide adequate management.	• No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs • Maintain stable or increasing population numbers • Protection of additional suitable habitat on Virgin & Muddy Rivers & Las Vegas Wash
Arizona bell's vireo *Vireo bellii arizonae*	24% of potential habitat	30% of potential habitat	46% of potential habitat	BLM RMP NPS GMP NDOW (Overton WMA)	Riparian dependent species of south central US and Mexico. Actions proposed for southwestern willow flycatcher will provide adequate management.	• No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs • Maintain stable or increasing population numbers • Protection of additional suitable habitat on Virgin & Muddy Rivers & Las Vegas Wash
Desert tortoise *Gopherus agassizii* **Federal Threatened**	56% of potential habitat	33% of potential habitat	11% of potential habitat	BLM RMP NPS GMP USFWS (DNWR)	Mojave desert endemic. 90% of potential habitat in Clark Co in IMAs, LIMAs (>2 million ac), or MUMAs (>1.4 million ac).	• Implementation of the DCP goals in IMAs, LIMAs, & MUMAs • Maintain stable or increasing population numbers
Banded gecko *Coleonyx variegatus*	56% of potential habitat; 37% of cited locations	33% of potential habitat; 53% of cited locations	11% of potential habitat; 11% of cited locations	BLM RMP NPS GMP USFWS (DNWR)	Southwestern desert endemic. 90% of potential habitat in Clark Co (>3.6 million ac) and cited locations in IMAs, LIMAs, or MUMAs.	• No net unmitigated loss or fragmentation of habitat in IMAs, LIMAs, & MUMAs • Maintain stable or increasing population numbers
Desert iguana *Dipsosaurus dorsalis*	55% of potential habitat; 28% of cited locations	32% of potential habitat; 44% of cited locations	13% of potential habitat; 28% of cited locations	BLM RMP NPS GMP USFWS (DNWR)	Southwestern desert endemic. 87% of potential habitat in Clark Co (>3 million ac) in IMAs, LIMAs, or MUMAs.	• No net unmitigated loss or fragmentation of habitat in IMAs, LIMAs, & MUMAs • Maintain stable or increasing population numbers
Western chuckwalla *Sauromalus obesus*	57% of potential habitat; 23% of cited locations	33% of potential habitat; 69% of cited locations	11% of potential habitat; 9% of cited locations	BLM RMP NPS GMP USFWS (DNWR)	Southwestern desert endemic. 89% of potential habitat in Clark Co (>2 million acres) and 91% of cited locations in IMAs, LIMAs, or MUMAs.	• No net unmitigated loss or fragmentation of habitat in IMAs, LIMAs, & MUMAs • Maintain stable or increasing population numbers

COVERED SPECIES CONSERVATION EVALUATIONS
(continued)

Species	Conserved (IMAs, LIMAs)	Potential Indirect Impacts (MUMAs)	Potential Direct Impacts (UMAs)[1]	Management	Rationale for Coverage	Measurable Biological Goals
Western red-tailed skink *Eumeces gilberti rubricaudatus*	92% of potential habitat	7% of potential habitat	1% of potential habitat	USFS SMNRA USFWS (DNWR) BLM Red Rock Cyn NCA BLM RMP	Eastern Mojave desert endemic. 92% of potential habitat in Clark Co (>250,000 ac) in IMAs & LIMAs.	• No net unmitigated loss or fragmentation of habitat in IMAs, LIMAs, & MUMAs • Maintain stable or increasing population numbers
Large-spotted leopard lizard *Gambelia wislizenii wislizenii*	55% of potential habitat; 34% of cited locations	32% of potential habitat; 58% of cited locations	13% of potential habitat; 8% of cited locations	BLM RMP NPS GMP USFWS (DNWR)	Great Basin, southwestern desert endemic. 87% of potential habitat in Clark Co (>2.9 million acres) and 92% of cited locations in IMAs, LIMAs, or MUMAs.	• No net unmitigated loss or fragmentation of habitat in IMAs, LIMAs, & MUMAs • Maintain stable or increasing population numbers
Great Basin collared lizard *Crotaphytus insularis bicinctores*	60% of potential habitat; 30% of cited locations	30% of potential habitat; 59% of cited locations	10% of potential habitat; 11% of cited locations	BLM RMP NPS GMP USFS SMNRA BLM Red Rock Cyn NCA USFWS (DNWR)	Great Basin, southwestern desert endemic. 90% of potential habitat in Clark Co (>2.9 million acres) and cited locations in IMAs, LIMAs, or MUMAs.	• No net unmitigated loss or fragmentation of habitat in IMAs, LIMAs, & MUMAs • Maintain stable or increasing population numbers
California (common) kingsnake *Lampropeltis getulus californiae*	55% of potential habitat; 38% of cited locations	32% of potential habitat; 57% of cited locations	13% of potential habitat; 5% of cited locations	BLM RMP NPS GMP USFWS (DNWR)	Southwestern desert and Pacific coast species. 87% of potential habitat in Clark Co (>2.9 million acres) and 95% of cited locations in IMAs, LIMAs, MUMAs.	• No net unmitigated loss or fragmentation of habitat in IMAs, LIMAs, & MUMAs • Maintain stable or increasing population numbers
Glossy snake *Arizona elegans*	55% of potential habitat; 57% of cited locations	32% of potential habitat; 23% of cited locations	13% of potential habitat; 20% of cited locations	BLM RMP NPS GMP USFWS (DNWR)	Southwestern desert endemic. 87% of potential habitat in Clark Co (>2.9 million acres) and cited locations in IMAs, LIMAs, or MUMAs.	• No net unmitigated loss or fragmentation of habitat in IMAs, LIMAs, & MUMAs • Maintain stable or increasing population numbers
Western long-nosed snake *Rhinocheilus lecontei lecontei*	55% of potential habitat; 20% of cited locations	32% of potential habitat; 68% of cited locations	13% of potential habitat; 11% of cited locations	BLM RMP NPS GMP USFWS (DNWR)	Southwestern desert endemic. 87% of potential habitat in Clark Co (>2.9 million acres) and 89% of cited locations in IMAs, LIMAs, or MUMAs.	• No net unmitigated loss or fragmentation of habitat in IMAs, LIMAs, & MUMAs • Maintain stable or increasing population numbers
Western leaf-nosed snake *Phyllorhynchus decurtatus*	55% of potential habitat	32% of potential habitat	13% of potential habitat	BLM RMP NPS GMP USFWS (DNWR)	Southwestern desert endemic. 87% of potential habitat in Clark Co (>2.9 million acres) in IMAs, LIMAs, or MUMAs.	• No net unmitigated loss or fragmentation of habitat in IMAs, LIMAs, & MUMAs • Maintain stable or increasing population numbers

COVERED SPECIES CONSERVATION EVALUATIONS
(continued)

Species	Conserved (IMAs, LIMAs)	Potential Indirect Impacts (MUMAs)	Potential Direct Impacts (UMAs)[1]	Management	Rationale for Coverage	Measurable Biological Goals
Sonoran lyre snake *Trimorphodon biscutatus lambda*	60% of potential habitat	30% of potential habitat	10% of potential habitat	BLM RMP NPS GMP USFS SMNRA BLM Red Rock Cyn NCA USFWS (DNWR)	Sonora and east Mojave desert species. 90% of potential habitat in Clark Co (>4.2 million acres) in IMAs, LIMAs, or MUMAs.	• No net unmitigated loss or fragmentation of habitat in IMAs, LIMAs, & MUMAs • Maintain stable or increasing population numbers
Sidewinder *Crotalus cerastes*	55% of potential habitat; 34% of cited locations	32% of potential habitat; 46% of cited locations	13% of potential habitat; 20% of cited locations	BLM RMP NPS GMP USFWS (DNWR)	Mojave desert endemic. 87% of potential habitat in Clark Co (>2.9 million acres) in IMAs, LIMAs, or MUMAs.	• No net unmitigated loss or fragmentation of habitat in IMAs, LIMAs, & MUMAs • Maintain stable or increasing population numbers
Speckled rattlesnake *Crotalus mitchelli*	59% of potential habitat; 25% of cited locations	31% of potential habitat; 75% of cited locations	10% of potential habitat	BLM RMP NPS GMP USFWS (DNWR) USFS SMNRA BLM Red Rock Cyn NCA	Southwestern desert endemic. 90% of potential habitat in Clark Co (>4.2 million acres) and all cited locations in IMAs, LIMAs, or MUMAs.	• No net unmitigated loss or fragmentation of habitat in IMAs, LIMAs, & MUMAs • Maintain stable or increasing population numbers
Mojave green rattlesnake *Crotalus scutulatus scutulatus*	56% of potential habitat; 64% of cited locations	33% of potential habitat; 21% of cited locations	11% of potential habitat; 14% of cited locations	BLM RMP NPS GMP USFWS (DNWR)	Southwestern desert endemic. 89% of potential habitat in Clark Co (>4.2 million acres) and 86% of cited locations in IMAs, LIMAs, or MUMAs.	• No net unmitigated loss or fragmentation of habitat in IMAs, LIMAs, & MUMAs • Maintain stable or increasing population numbers
Relict leopard frog *Rana onca*	Both extant populations; 76% of cited locations	19% of cited locations	5% of cited locations	NPS GMP	Clark County/northwestern Arizona endemic. Both extant populations in Clark County managed by NPS.	• Increase the number of springs with populations through reintroduction in appropriate locations • Maintain stable or increasing populations at extant springs • Develop and implement relict leopard frog management plan
Dark blue butterfly *Euphilotes enoptes* ssp.	All known population and cited locations	none	none	USFS SMNRA	Spring Mtns endemic. Monitored and managed as part of the Spring Mtns CA.	• No net unmitigated loss of larval host plant or nectar plant species habitat in SMNRA • Maintain stable or increasing population numbers and host and larval plant species

COVERED SPECIES CONSERVATION EVALUATIONS
(continued)

Species	Conserved (IMAs, LIMAs)	Potential Indirect Impacts (MUMAs)	Potential Direct Impacts (UMAs)[1]	Management	Rationale for Coverage	Measurable Biological Goals
Spring Mountains icarioides blue *Icaricia icarioides* ssp.	All known populations	none	none	USFS SMNRA	Spring Mtns endemic. All known habitat monitored and managed as part of the Spring Mtns CA.	• No net unmitigated loss of larval host plant or nectar plant species habitat in SMNRA • Maintain stable or increasing population numbers and host and larval plant species
Mt. Charleston blue butterfly *Icaricia shasta charlestonensis*	All known population and cited locations	none	none	USFS SMNRA	Spring Mtns endemic. All known habitat monitored and managed as part of the Spring Mtns CA.	• No net unmitigated loss of larval host plant or nectar plant species habitat in SMNRA • Maintain stable or increasing population numbers and host and larval plant species
Spring Mountains acastus checkerspot *Chlosyne acastus*	All known population and cited locations	none	none	USFS SMNRA	Spring Mtns endemic. All known habitat monitored and managed as part of the Spring Mtns CA.	• No net unmitigated loss of larval host plant or nectar plant species habitat in SMNRA • Maintain stable or increasing population numbers and host and larval plant species
Morand's checkerspot butterfly *Euphydryas anicia morandi*	All known population and cited locations	none	none	USFS SMNRA	Spring Mtns endemic. All known habitat monitored and managed as part of the Spring Mtns CA.	• No net unmitigated loss of larval host plant or nectar plant species habitat in SMNRA • Maintain stable or increasing population numbers and host and larval plant species
Carole's silverspot butterfly *Speyeria zerene carolae*	All known population and cited locations	none	none	USFS SMNRA	Spring Mtns endemic. All known habitat monitored and managed as part of the Spring Mtns CA.	• No net unmitigated loss of larval host plant or nectar plant species habitat in SMNRA • Maintain stable or increasing population numbers and host and larval plant species
Nevada admiral *Limenitus weidemeyerii nevadae*	All known population and cited locations	none	none	USFS SMNRA BLM Red Rock Cyn NCA USFWS (DNWR)	Southern Nevada endemic (Spring Mtns, Sheep Range). All known habitat monitored and managed as part of the Spring Mtns CA, BLM management actions for Red Rock Cyn, or USFWS management of the DNWR.	• No net unmitigated loss of larval host plant or nectar plant species habitat in SMNRA Sheep Range • Maintain stable or increasing population numbers and host and larval plant species
Spring Mountains comma skipper *Hesperia comma* ssp.	All known populations	none	none	USFS SMNRA BLM Red Rock Cyn NCA	Spring Mtns endemic. All known habitat monitored and managed as part of the Spring Mtns CA or BLM management actions for Red Rock Cyn.	• No net unmitigated loss of larval host plant or nectar plant species habitat in SMNRA • Maintain stable or increasing population numbers and host and larval plant species

COVERED SPECIES CONSERVATION EVALUATIONS
(continued)

Species	Conserved (IMAs, LIMAs)	Potential Indirect Impacts (MUMAs)	Potential Direct Impacts (UMAs)'	Management	Rationale for Coverage	Measurable Biological Goals
Spring Mountains springsnail *Pyrgulopsis deaconi*	2 extant and 1 extirpated population	none	none	USFS SMNRA BLM Red Rock Cyn NCA	Southern Nevada endemic with 2 of 3 extant populations in Clark Co within IMAs with specific management actions; only other population in Nye County.	• Increase number of springs with populations through reintroduction in Red Rock • Maintain stable or increasing populations at extant springs
Southeast Nevada springsnail *Pyrgulopsis turbatrix*	5 extant and 1 extirpated population	none	none	USFS SMNRA BLM Red Rock Cyn NCA	Red Rock endemic with 5 extant populations in IMA or LIMA lands managed by USFS and BLM.	• Increase number of springs with populations through reintroduction in Willow Springs • Maintain stable or increasing populations at extant springs
Clokey eggvetch *Astragalus oophorus* var. *clokeyanus*	93% of potential habitat; 13 of 14 cited locations	6% of potential habitat	1% of potential habitat	USFS SMNRA	Southern Nevada endemic with more than 99% of populations in SMNRA with specific management actions.	• No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs • Maintain stable or increasing population numbers
Blue Diamond cholla *Opuntia whipplei* var. *multigeniculata* **State of Nevada Critically Endangered, Federal Candidate**	95% of known habitat	none	5% of known habitat	BLM Red Rock Cyn NCA	Blue Diamond Hills endemic. Approximately 95% of the habitat for this species will be on Federal land managed under the terms of a conservation agreement.	• No loss of Blue Diamond cholla in the management area • Maintain stable or increasing population numbers • Harvest and stockpile mature seeds to conserve a seed bank for propagation studies
Rough angelica *Angelica scabrida*	91% of cited locations	none	9% of cited locations	USFS SMNRA	Spring Mtns endemic with more than 90% of populations in SMNRA with specific management actions in the Spring Mtns CA.	• No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs • Maintain stable or increasing population numbers
Sticky ringstem *Anulocaulis leisolenus*	22% of potential habitat	60% of potential habitat	17% of potential habitat	BLM RMP NPS GMP	Southwestern US. More than 80% of widespread habitat in IMA, LIMA, and MUMAs. Protection for the coextensive Las Vegas bearpoppy provides protection for this species.	• No net unmitigated loss or fragmentation of habitat in IMAs, LIMAs, & MUMAs • Maintain stable or increasing population numbers

COVERED SPECIES CONSERVATION EVALUATIONS
(continued)

Species	Conserved (IMAs, LIMAs)	Potential Indirect Impacts (MUMAs)	Potential Direct Impacts (UMAs)[1]	Management	Rationale for Coverage	Measurable Biological Goals
Spring Mountain milkvetch *Astragalus remotus*	98% of cited locations	none	2% of cited locations	USFS SMNRA	Spring Mtns endemic with more than 98% of populations in SMNRA with specific management actions in the Spring Mtns CA.	• No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs • Maintain stable or increasing population numbers
Alkali mariposa lily *Calochortus striatus*	88% of cited locations	none	12% of cited locations	BLM Red Rock Cyn NCA	Eastern Mojave desert endemic. Almost 90% of cited locations in IMAs & LIMAs, primarily in Red Rock Cyn NCA.	• No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs • Maintain stable or increasing population numbers • Develop an activities plan for the NCA including management for this species
Clokey paintbrush *Castelleja martinii* var. *clokeyi*	88% of cited locations	none	13% of cited locations	USFS SMNRA USFWS (DNWR)	Eastern Mojave desert mountains endemic with almost 90% of populations in SMNRA and DNWR with specific management actions in the Spring Mtns CA.	• No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs • Maintain stable or increasing population numbers
Clokey thistle *Cirsium clokeyi*	88% of cited locations	none	13% of cited locations	USFS SMNRA	Spring Mtns endemic with almost 90% of populations in SMNRA with specific management actions in the Spring Mtns CA.	• No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs • Maintain stable or increasing population numbers
Jaeger whitlowgrass *Draba jaegeri*	All cited locations	none	none	USFS SMNRA	Spring Mtns endemic with all known populations in SMNRA with specific management actions in the Spring Mtns CA.	• No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs • Maintain stable or increasing population numbers
Charleston draba *Draba paucifructa*	All cited locations	none	none	USFS SMNRA	Spring Mtns endemic with all known populations in SMNRA with specific management actions in the Spring Mtns CA.	• No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs • Maintain stable or increasing population numbers
Inch high fleabane *Erigeron uncialis* ssp. *Conjugans*	All cited locations	none	none	USFS SMNRA	Southern Nevada endemic with all known populations in SMNRA and DNWR with specific management actions in the Spring Mtns CA.	• No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs • Maintain stable or increasing population numbers

COVERED SPECIES CONSERVATION EVALUATIONS
(continued)

Species	Conserved (IMAs, LIMAs)	Potential Indirect Impacts (MUMAs)	Potential Direct Impacts (UMAs)[1]	Management	Rationale for Coverage	Measurable Biological Goals
Charleston pussytoes *Antennaria soliceps*	96% of cited locations		4% of cited locations	USFS SMNRA	Spring Mtns endemic with more than 96% of populations in SMNRA with specific management actions in the Spring Mtns CA.	• No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs • Maintain stable or increasing population numbers
Las Vegas bearpoppy *Arctomecon californica* State of Nevada Critically Endangered	22% of cited locations	60% of cited locations	17% of cited locations	BLM RMP NPS GMP	Southern Nevada and northeastern Arizona endemic. The majority (82%) of potential habitat, including 3 populations in Las Vegas Valley, will be managed under the terms of the Las Vegas Bearpoppy Memorandum of Agreement. In addition to designation of ACECs for the species, BLM will develop and implement a habitat management plan for the species on BLM land, including MUMAs.	• Conserve populations on the North Las Vegas Airport, NAFB Area 3, and SNWA North Well Field • No net unmitigated loss or fragmentation of habitat in IMAs, LIMAs, & MUMAs • Maintain and/or improve bearpoppy habitat in 4 BLM management areas: Sunrise, Lovell Wash, Bitter Spring, Gold Butte
White bearpoppy *Arctomecon merriamii*	84% of cited locations	3% of cited locations	13% of cited locations	USFS SMNRA USFWS (DNWR)	Mojave desert endemic. 83% of cited locations in IMAs and LIMAs; 60% of potential habitat on DNWR.	• No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs • Maintain stable or increasing population numbers
Rosy king sandwort *Arenaria kingii* ssp. *rosea*	88% of known locations	none	12% of known locations	USFS SMNRA	Spring Mtns endemic. 15 of 17 sites in IMA managed under terms of Spring Mtns CA.	• No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs • Maintain stable or increasing population numbers
Clokey milkvetch *Astragalus aequalis*	96% of cited locations	none	4% of cited locations	USFS SMNRA	Spring Mtns endemic with more than 96% of populations in SMNRA with specific management actions in the Spring Mtns CA.	• No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs • Maintain stable or increasing population numbers
Threecorner milkvetch *Astragalus geyeri* var. *triquetrus* State of Nevada Critically Endangered	18% of cited locations	82% of cited locations	<1% of cited locations	BLM RMP NPS GMP NDF NRS 527.270	Southeastern Mojave desert endemic with 99% of potential habitat in Clark Co and all but 6 of 825 cited locations in IMAs, LIMAs, or MUMAs protected by NRS.	• No net unmitigated loss or fragmentation of habitat in IMAs, LIMAs & MUMAs • Maintain stable or increasing population numbers

COVERED SPECIES CONSERVATION EVALUATIONS
(continued)

Species	Conserved (IMAs, LIMAs)	Potential Indirect Impacts (MUMAs)	Potential Direct Impacts (UMAs)[1]	Management	Rationale for Coverage	Measurable Biological Goals
Forked buckwheat *Eriogonum bifurcatum*	none	Unknown proportion of habitat	Unknown proportion of habitat	BLM RMP	Pahrump Valley (eastern Mojave desert) endemic. Most of the habitat for this ephemeral species appears to be on BLM land. BLM management should preclude further loss of habitat.	• No net unmitigated loss or fragmentation of habitat on public lands • Maintain stable or increasing population numbers on public lands • Develop inventory of extant populations in Pahrump and Sandy Valley
Sticky buckwheat *Eriogonum viscidulum* **State of Nevada Critically Endangered**	30% of cited locations	67% of cited locations	4% of cited locations	BLM RMP NPS GMP NDF NRS 527.270	Eastern Mojave desert endemic with 97% of potential habitat in Clark Co and all but 3 of 84 cited locations in IMAs, LIMAs, or MUMAs protected by NRS.	• No net unmitigated loss or fragmentation of habitat in IMAs, LIMAs, & MUMAs • Maintain stable or increasing population numbers
Clokey greasebush *Glossopetalon clokeyi*	All cited locations	none	none	USFS SMNRA	Spring Mtns endemic with all known populations in SMNRA with specific management actions in the Spring Mtns CA.	• No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs • Maintain stable or increasing population numbers
Smooth pungent greasebush *Glossopetalon pungens* var. *glabra*	All cited locations	none	none	USFS SMNRA BLM Red Rock Cyn NCA USFWS (DNWR)	Eastern Mojave desert mountains endemic. All habitat for this species in IMAs and LIMAs managed by USFS (Spring Mtns CA), USFWS, and BLM (Bridge Mtn Monitoring Plan).	• No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs • Maintain stable or increasing population numbers
Pungent dwarf greasebush *Glossopetalon pungens* var. *pungens*	All cited locations	none	none	USFS SMNRA BLM Red Rock Cyn NCA USFWS (DNWR)	Southern Nevada endemic. All habitat for this species in IMAs and LIMAs managed by USFS (Spring Mtns CA), USFWS, and BLM (Bridge Mtn Monitoring Plan).	• No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs • Maintain stable or increasing population numbers
Red Rock Canyon aster *Ionactis caelestis*	All cited locations	none	none	BLM Red Rock Cyn NCA	Red Rock Cyn endemic. Single, remote population managed under the Red Rock Cyn NCA GMP.	• No loss or disturbance of habitat in Red Rock Cyn NCA • Maintain stable or increasing population numbers

COVERED SPECIES CONSERVATION EVALUATIONS
(continued)

Species	Conserved (IMAs, LIMAs)	Potential Indirect Impacts (MUMAs)	Potential Direct Impacts (UMAs)[1]	Management	Rationale for Coverage	Measurable Biological Goals
Hidden ivesia *Ivesia cryptocaulis*	All cited locations	none	none	USFS SMNRA	Spring Mtns endemic with all known populations in SMNRA with specific management actions in the Spring Mtns CA.	• No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs • Maintain stable or increasing population numbers
Jaeger ivesia *Ivesia jaegeri*	95% of cited locations	none	5% of cited locations	USFS SMNRA BLM Red Rock Cyn NCA	Spring Mtns (NV) and Clark Mtns (CA) endemic. 95% of cited populations in SMNRA and BLM Red Rock Cyn NCA, with specific management actions in Spring Mtns CA.	• No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs • Maintain stable or increasing population numbers
Hitchcock bladderpod *Lesquerella hitchcockii*	93% of cited locations	none	7% of cited locations	USFS SMNRA USFWS (DNWR)	Nevada endemic with 95% of Clark Co populations in SMNRA and DNWR, with specific management actions in Spring Mtns CA.	• No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs • Maintain stable or increasing population numbers
Charleston pinewood lousewort *Pedicularis semibarbata* var. *charlestonensis*	97% of potential habitat		3% of potential habitat	USFS SMNRA USFWS (DNWR)	Southern Nevada endemic with 97% of Clark Co populations in SMNRA and DNWR, with specific management actions in Spring Mtns CA.	• No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs • Maintain stable or increasing population numbers
White-margined beardtongue *Penstemon albomarginatus*	30% of cited locations	70% of cited locations	<1% of cited locations	BLM RMP	Eastern Mojave desert endemic. Less than 1% of populations on private lands. BLM is conducting experimental grazing exclosure study to evaluate grazing impacts to this species.	• No net unmitigated loss or fragmentation of habitat in IMAs, LIMAs, & MUMAs • Maintain stable or increasing population numbers • Implement modifications to grazing practices as indicated by exclosure study on Jean Lake and Hidden Valley
Charleston beardtongue *Penstemon leiophyllus* var. *keckii*	>90% of cited locations	none	<10% of cited locations	USFS SMNRA	Spring Mtns endemic with >90% of known populations in SMNRA with specific management actions in Spring Mtns CA.	• No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs • Maintain stable or increasing population numbers

COVERED SPECIES CONSERVATION EVALUATIONS
(continued)

Species	Conserved (IMAs, LIMAs)	Potential Indirect Impacts (MUMAs)	Potential Direct Impacts (UMAs)[1]	Management	Rationale for Coverage	Measurable Biological Goals
Jaeger beardtongue *Penstemon thompsoneae* var. *jaegeri*	All cited locations	none	none	USFS SMNRA	Southern Nevada endemic with all known populations in SMNRA with specific management actions in Spring Mtns CA.	• No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs • Maintain stable or increasing population numbers
Parish's phacelia *Phacelia parishii*	>90% of cited locations	none	<10% of cited locations	USFWS (DNWR)	Mojave desert endemic with >90% of Clark Co populations in IMAs and LIMAs on DNWR.	• No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs • Maintain stable or increasing population numbers
Clokey mountain sage *Salvia dorrii* var. *clokeyi*	All cited locations	none	none	USFS SMNRA BLM GMP USFWS (DNWR)	Southern Nevada endemic with all known populations in SMNRA with specific management actions in Spring Mtns CA.	• No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs • Maintain stable or increasing population numbers
Clokey catchfly *Silene clokeyi*	96% of cited locations	none	4% of cited locations	USFS SMNRA	Spring Mtns endemic with >96% of known populations in SMNRA with specific management actions in Spring Mtns CA.	• No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs • Maintain stable or increasing population numbers
Charleston tansy *Sphaeromeria compacta*	>90% of cited locations	none	<10% of cited locations	USFS SMNRA	Spring Mtns endemic with >90% of known populations in SMNRA with specific management actions in Spring Mtns CA.	• No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs • Maintain stable or increasing population numbers
Charleston kittentails *Synthyris ranunculina*	All cited locations	none	none	USFS SMNRA	Spring Mtns endemic with all known populations in SMNRA with specific management actions in Spring Mtns CA.	• No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs • Maintain stable or increasing population numbers
Charleston grounddaisy *Townsendia jonesii* var. *tumulosa*	>90% of cited locations	none	<10% of cited locations	USFS SMNRA BLM Red Rock Cyn NCA USFWS (DNWR)	Southern Nevada endemic. >90% of habitat for this species in IMAs and LIMAs managed by USFS (Spring Mtns CA), USFWS, and BLM (Bridge Mtn Monitoring Plan).	• No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs • Maintain stable or increasing population numbers

COVERED SPECIES CONSERVATION EVALUATIONS
(continued)

Species	Conserved (IMAs, LIMAs)	Potential Indirect Impacts (MUMAs)	Potential Direct Impacts (UMAs)[1]	Management	Rationale for Coverage	Measurable Biological Goals
Limestone violet *Viola purpurea* var. *charlestonensis*	All known locations	none	none	USFS SMNRA BLM GMP USFWS (DNWR)	Southwestern desert endemic with all known populations in IMAs and LIMAs with specific management actions in the Spring Mtns CA.	• No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs • Maintain stable or increasing population numbers
Anacolia menziesii	Only cited locations	none	none	BLM Red Rock Cyn NCA	West Coast species with single location in Nevada at Red Rock Cyn.	• No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs • Maintain stable or increasing population numbers
Claopodium whippleanum	Only cited locations	none	none	BLM Red Rock Cyn NCA	West Coast species with single location in Nevada at Red Rock Cyn.	• No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs • Maintain stable or increasing population numbers
Dicranoweisia crispula	Only cited locations	none	none	USFS SMNRA	Western North American species with single population in Lee Cyn.	• No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs • Maintain stable or increasing population numbers
Syntrichia princeps	Both cited locations	none	none	USFS SMNRA BLM GMP	West Coast species with two Nevada locations in Spring Mtns and Virgin Mtns.	• No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs • Maintain stable or increasing population numbers

[1]In all cases, projected potential impacts represent the "worst case" analysis.

Nevada Natural Heritage Program

Department of Conservation and Natural Resources

1550 East College Parkway, Suite 145 * Carson City, Nevada 89706-7921
voice: (775) 687-4245 fax: (775) 687-1288 web: www.state.nv.us/nvnhp/

RECEIVED
APR 18 2002

15 April 2002

George R. High
Parsons Engineering Science, Inc.
840 Grier Dr., Suite 340
Las Vegas, NV 89119

RE: Data request received 10 April 2002

Dear Mr. High:

We are pleased to provide the information you requested on endangered, threatened, candidate, and/or sensitive plant and animal taxa recorded within or near the Ivanpah Energy Center Environmental Impact Statement project area. We searched our database and maps for the following: A three mile buffer zone around map provided of Proposed Diamond Generating Corporation Ivanpah Energy Center Project.

The enclosed printout lists the taxa recorded within the given area. Please be aware that habitat may also be available for: the chuckwalla, *Sauromalus obesus*, a Nevada Bureau of Land Management(BLM) Sensitive Species; the Brazilian free-tailed bat, *Tadarida brasiliensis*, a Taxon determined to be Sensitive by the Nevada Natural Heritage Program; and the Las Vegas bearpoppy, *Arctomecon californica*, a Nevada BLM Special Status Species also protected under Nevada state law (NRS 527.260-.300) as critically endangered. We do not have complete data on various raptors that may also occur in the area; for more information contact Ralph Phenix, Nevada Division of Wildlife at (775) 688-1565. Please note that all cacti, yuccas, and Christmas trees are protected by Nevada state law (NRS 527.060-.120), including taxa not tracked by this office.

Please note that our data are dependent on the research and observations of many individuals and organizations, and in most cases are not the result of comprehensive or site-specific field surveys. Natural Heritage reports should never be regarded as final statements on the taxa or areas being considered, nor should they be substituted for on-site surveys required for environmental assessments.

Thank you for checking with our program. Please contact us for additional information or further assistance.

Sincerely,

Eric S. Miskow
Biologist III/Data Manager

Definitions of Symbols used by Nevada Natural Heritage Program

U. S. Fish and Wildlife Service (USFWS) Categories for Listing under the Endangered Species Act:

LE	Listed Endangered - in danger of extinction in all or a significant portion of its range
LT	Listed Threatened - likely to be classified as Endangered in the foreseeable future if present trends continue
PE	Proposed Endangered
PT	Proposed Threatened
C	Candidate
<C1	Former Category 1 Candidate, now species of concern
<C2	Former Category 2 Candidate, now species of concern
NL	Not Listed (no status) in a portion of the species' range
PS	Partial Status, listed in a portion of entire species' range
_SA	Similarity of appearance species
_XE	Essential experimental population
_XN	Nonessential experimental population

Bureau of Land Management (BLM) Species Classification:

S	Nevada Special Status Species - USFWS listed, proposed or candidate for listing, or protected by Nevada state law
N	Nevada Special Status Species - designated Sensitive by State Office
C	California Special Status Species (see definition S and N)

United States Forest Service (USFS) Species Classification:

S	Region 4 (Humboldt-Toiyabe) sensitive species
I	Region 5 (Inyo) sensitive species
W	Region 5 (Inyo) watch species
P	Region 5 (Inyo) proposed watch or sensitive species
L	Region 5 (Inyo) Lake Tahoe Basin Management Unit sensitive species
E	USFWS listed Endangered
T	USFWS listed Threatened

Nevada State Protected (STATE) Species Classification:

Fauna:

YES	Species protected under NRS 501.

Flora:

CE	Critically endangered - species threatened with extinction, whose survival requires assistance because of overexploitation, disease or other factors or because their habitat is threatened with destruction, drastic modification or severe curtailment (NRS 527.260-.300)
CE#	Recommended for listing as critically endangered
CY	Protected as a cactus, yucca, or Christmas tree (NRS 527.060-.120)

Precision (PREC) of Mapped Occurrence:

Precision, or radius of uncertainty around latitude/longitude coordinates:

S	Seconds: within a three-second radius
M	Minutes: within a one-minute radius, approximately 2 km or 1.5 miles
G	General: within about 8 km or 5 miles, or to map quadrangle or place name

Nevada Natural Heritage Program Global (GRANK) Element Ranks for Threats and/or Vulnerability:

- G — Global rank indicator, based on worldwide distribution at the species level
- T — Global trinomial rank indicator, based on worldwide distribution at the infraspecific level
- S — State rank indicator, based on distribution within Nevada at the lowest taxonomic level
 - 1 — Critically imperiled due to extreme rarity, imminent threats, or biological factors
 - 2 — Imperiled due to rarity or other demonstrable factors
 - 3 — Rare and local throughout its range, or with very restricted range, or otherwise
 - 4 — vulnerable to extinction
 - 5 — Apparently secure, though frequently quite rare in parts of its range, especially at
 - 6 — its periphery
 - 5 — Demonstrably secure, though frequently quite rare in parts of its range, especially at
 - 6 — its periphery
 - A — Accidental
 - E — Exotic or introduced
 - H — Of historical occurrence, not now known but could be rediscovered
 - P — Potential
 - Q — Taxonomic status uncertain
 - U — Unknown
 - X — Believed extinct or extirpated within Nevada
 - ? — Assigned rank uncertain

Sensitive Taxa Recorded Near the Ivanpah Energy Center Environmental Impact Statement For: Parsons Engineering Science, Inc.
Provided by Nevada Natural Heritage Program
15 April 2002

Scientific name	Common name	Usfws	Blm	Usfs	State	Grank	Townrange	Section	Lat	Long	Prec	Last observed
Plants												
Astragalus mohavensis var. *mohavensis*	Mojave milkvetch					G3T3?	025S058E	14	35.767222	115.443889	M	1999-05-14
Astragalus mohavensis var. *mohavensis*	Mojave milkvetch					G3T3?	024S058E	32	35.820556	115.486389	M	1999-05-14
Astragalus oycensis	Nye milkvetch					G3	024S058E	26	35.830000	115.435000	M	1980-04-21
Astragalus remotus	Spring Mountains milkvetch	<C2	N	S		G2	024S058E	26	35.837500	115.434722	G	1905-05-01
Erigeron ovinus	sheep fleabane	<C2	N			G2	025S060E	19	35.751667	115.290833	G	1892-06
Eriogonum heermannii var. *clokeyi*	Clokey buckwheat		N	S		G5T2	024S058E	31	35.816389	115.504167	M	1938-06-11
Penstemon albomarginatus	white-margined beardtongue	<C2	N			G2	026S059E	13;14;23;24	35.686944	115.320556	S	1997-04-25
Penstemon albomarginatus	white-margined beardtongue	<C2	N			G2	025S059E	13;23-26;35;36	35.744444	115.320000	S	1997-04-16
							025S060E	18;19;31				
Penstemon albomarginatus	white-margined beardtongue	<C2	N			G2	024S060E	35;36	35.784444	115.223333	S	1997-SP
							025S060E	1				
							025S061E	19;30				
Penstemon bicolor ssp. *bicolor*	yellow twotone beardtongue	<C2	N	S		G3T2Q	024S058E	25	35.834722	115.427500	S	1990-05-02
Penstemon bicolor ssp. *bicolor*	yellow twotone beardtongue	<C2	N	S		G3T2Q	025S059E	04;05;10	35.800000	115.364167	S	1979-05-06
Penstemon bicolor ssp. *bicolor*	yellow twotone beardtongue	<C2	N	S		G3T2Q	024S059E	31;32	35.813889	115.395000	M	1991-05-13
Penstemon bicolor ssp. *bicolor*	yellow twotone beardtongue	<C2	N	S		G3T2Q	025S059E	01;12	35.798611	115.310833	S	1979-05-06
							025S060E	6				
Penstemon bicolor ssp. *bicolor*	yellow twotone beardtongue	<C2	N	S		G3T2Q	025S061E	31	35.726944	115.203611	M	1970-04-05
Penstemon bicolor ssp. *roseus*	rosy twotone beardtongue	<C2		S		G3T3Q	025S061E	21	35.753889	115.169167	S	1993-04-06
Penstemon bicolor ssp. *roseus*	rosy twotone beardtongue	<C2		S		G3T3Q	025S062E	19	35.758333	115.100278	S	1993-04-07
Penstemon bicolor ssp. *roseus*	rosy twotone beardtongue	<C2		S		G3T3Q	025S059E	01	35.798611	115.310833	S	1979-05-06
Penstemon bicolor ssp. *roseus*	rosy twotone beardtongue	<C2		S		G3T3Q	025S061E	34	35.731944	115.150833	S	1970-04-05
Penstemon bicolor ssp. *roseus*	rosy twotone beardtongue	<C2		S		G3T3Q	024S059E	31	35.813889	115.395000	G	1938-05-02
Penstemon bicolor ssp. *roseus*	rosy twotone beardtongue	<C2		S		G3T3Q	025S061E	26	35.740278	115.126944	S	1980-04-01
Penstemon bicolor ssp. *roseus*	rosy twotone beardtongue	<C2		S		G3T3Q	025S061E	21;22	35.750278	115.149444	S	1993-04-07
Penstemon bicolor ssp. *roseus*	rosy twotone beardtongue	<C2		S		G3T3Q	025S061E	31	35.726944	115.203611	M	1969-05-03
Penstemon bicolor ssp. *roseus*	rosy twotone beardtongue	<C2		S		G3T3Q	024S058E	25	35.834722	115.427500	S	1990-05-02
Penstemon bicolor ssp. *roseus*	rosy twotone beardtongue	<C2		S		G3T3Q	025S059E	04	35.798056	115.361667	S	1979-05-06
Reptiles												
Gopherus agassizii	desert tortoise (Mojave Desert pop.)	LTNL	S	T	YES	G4	023S064E	34	35.902778	114.820000	S	1987-1990
Gopherus agassizii	desert tortoise (Mojave Desert pop.)	LTNL	S	T	YES	G4	025S062E	12	35.782222	114.994444	S	1987-1990
Gopherus agassizii	desert tortoise (Mojave Desert pop.)	LTNL	S	T	YES	G4	023S063E	27;33	35.907500	114.953056	S	1987-1990
							024S063E	05,07				
Gopherus agassizii	desert tortoise (Mojave Desert pop.)	LTNL	S	T	YES	G4	024S064E	04;08-10;22;23;34;35	35.888611	114.831111	S	2000-08-30
							023S064E	21;28;32;34				
							025S064E	2				
Gopherus agassizii	desert tortoise (Mojave Desert pop.)	LTNL	S	T	YES	G4	024S059E	30	35.827500	115.399167	S	1987-1990

Sensitive Taxa Recorded Near the Ivanpah Energy Center Environmental Impact Statement For: Parsons Engineering Science, Inc.
Provided by Nevada Natural Heritage Program
15 April 2002

Scientific name	Common name	Usfws	Blm	Usfs	State	Grank	Townrange	Section	Lat	Long	Prec	Last observed
Reptiles (cont.)												
Gopherus agassizii	desert tortoise (Mojave Desert pop.)	LTNL	S	T	YES	G4	025S058E	10;11	35.791111	115.460833	S	1995-09-06
Gopherus agassizii	desert tortoise (Mojave Desert pop.)	LTNL	S	T	YES	G4	025S059E	05;08;09;15-21;28-33	35.790278	115.365278	S	1991-POST
							024S058E	35-36				
							025S058E	12;24;36				
							026S058E	11;13				
							026S059E	5-8;17-19;29;31				
Gopherus agassizii	desert tortoise (Mojave Desert pop.)	LTNL	S	T	YES	G4	023S063E	24	35.946111	114.878611	S	2000-08-29
							023S063E	12;13				
Gopherus agassizii	desert tortoise (Mojave Desert pop.)	LTNL	S	T	YES	G4	024S063E	08;32	35.810833	114.962222	S	1987-1990
Gopherus agassizii	desert tortoise (Mojave Desert pop.)	LTNL	S	T	YES	G4	023S063E	12	35.965833	114.900278	S	2000-05-30
Gopherus agassizii	desert tortoise (Mojave Desert pop.)	LTNL	S	T	YES	G4	024S058E	35	35.812500	115.436111	S	1987-PRE
Gopherus agassizii	desert tortoise (Mojave Desert pop.)	LTNL	S	T	YES	G4	026S059E	03	35.710278	115.355556	S	1991-POST
Gopherus agassizii	desert tortoise (Mojave Desert pop.)	LTNL	S	T	YES	G4	023S063E	25	35.920833	114.892500	S	1987-PRE
Gopherus agassizii	desert tortoise (Mojave Desert pop.)	LTNL	S	T	YES	G4	025S060E	34	35.730278	115.253333	S	1987-PRE
Gopherus agassizii	desert tortoise (Mojave Desert pop.)	LTNL	S	T	YES	G4	025S062E	04;16;17;20;30	35.768889	115.069722	S	1999-05-18
							025S061E	24				
Gopherus agassizii	desert tortoise (Mojave Desert pop.)	LTNL	S	T	YES	G4	024S063E	34	35.817778	114.926389	S	1987-1990
Gopherus agassizii	desert tortoise (Mojave Desert pop.)	LTNL	S	T	YES	G4	023S063E	14	35.943333	114.918611	S	2000-11-28
Gopherus agassizii	desert tortoise (Mojave Desert pop.)	LTNL	S	T	YES	G4	024S063E	20	35.851389	114.970833	S	1987-1990
Gopherus agassizii	desert tortoise (Mojave Desert pop.)	LTNL	S	T	YES	G4	025S061E	19	35.757500	115.193889	S	1995-09-28
Gopherus agassizii	desert tortoise (Mojave Desert pop.)	LTNL	S	T	YES	G4	026S060E	01	35.710000	115.212778	S	1987-PRE
Gopherus agassizii	desert tortoise (Mojave Desert pop.)	LTNL	S	T	YES	G4	024S059E	13;23;25;27;33-36	35.815000	115.317222	S	1991-POST
							024S060E	18				
							025S059E	02;03;11				
Gopherus agassizii	desert tortoise (Mojave Desert pop.)	LTNL	S	T	YES	G4	025S060E	31	35.726944	115.289722	S	1995-05-05
							026S060E	05;06;08;09;13;15;23				
							025S059E	35				
							026S059E	1;12				
Heloderma suspectum cinctum	banded Gila monster	<C2NL	S		YES	G4T4	025S059E				S	1978
Heloderma suspectum cinctum	banded Gila monster	<C2NL	S		YES	G4T4	025S058E				S	1996-05

United States Department of the Interior

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FISH AND WILDLIFE SERVICE
NEVADA FISH AND WILDLIFE OFFICE
1340 FINANCIAL BOULEVARD, SUITE 234
RENO, NEVADA 89502

June 27, 2002
File No. 1-5-02-SP-481

Mr. George High
Parsons Engineering Science, Inc.
840 Grier Drive, Suite 340
Las Vegas, Nevada 89119

Dear Mr. High:

Subject: Species List for the Proposed Ivanpah Energy Center, Clark County, Nevada

This responds to your letter dated April 7, 2002, requesting information on threatened and endangered species and species of concern that *may* occur in the subject project area. We have enclosed a list of threatened and endangered species that *may* be present within the vicinity of, or be affected by, the proposed project (Enclosure A). This list fulfills the requirement of the Fish and Wildlife Service (Service) to provide information on listed species pursuant to section 7(c) of the Endangered Species Act of 1973, as amended (Act), for projects that are authorized, funded, or carried out by a Federal agency. Please reference the species list file number on Enclosure A in all subsequent correspondence concerning this project.

Enclosure A also lists the species of concern to the Nevada Fish and Wildlife office that *may* occur in the project area. We have used information from State and Federal agencies and private sources to assess the conservation needs and status of these species. Further biological research and field study are needed to resolve the conservation status of these taxa. One potential benefit of considering these species during project planning, is that by exploring alternatives early in the planning process, it may be possible to provide long-term conservation benefits for these species and avoid future conflicts that could otherwise develop. We also recommend that you contact the Nevada Natural Heritage Program (1550 East College Parkway, Suite 145, Carson City, Nevada 89710, 775-687-4245) and the appropriate regional office of the Nevada Division of Wildlife, as well as other local, State, and Federal agencies for distribution data and information on conservation needs on these and other species of concern that may occur in your project area. Potential impacts to species of concern should be considered during the environmental documentation process.

Based on the information provided in your correspondence, the proposed project is within the range of the desert tortoise (*Gopherus agassizii*) a species listed as threatened under the Act. From the project description and map provided in your correspondence it appears that part of the proposed transmission line traverses critical habitat that has been designated for the desert tortoise. The final rule for the designation of critical habitat for the desert tortoise was published in the Federal Register on February 8, 1994 (59 FR 5820). Modification to critical habitat should be considered when determining the effects of the proposed project on the desert tortoise. Enclosure B includes a map of designated critical habitat for the desert tortoise within the vicinity of the proposed project.

In addition, based on the project description and map provided in your correspondence it appears that part of the proposed transmission line traverses the desert tortoise Large Scale Translocation Site (LSTS). This translocation effort is being conducted in accordance with special conditions in the 30-year section 10(a)(1)(B) permit issued to Clark County by the Service in association with the Clark County Desert Conservation Plan which was incorporated into the Multiple Species Habitat Conservation Plan. We encourage you to consider the impact that modification of habitat would have at the LSTS when determining the effects of the proposed project on the desert tortoise.

If the proposed project is authorized, funded, or carried out by a Federal agency, and if it is determined that a listed species may be affected by the proposed projects, the Federal agency should initiate consultation pursuant to 50 CFR § 402.14. Enclosure C provides a discussion of the responsibilities Federal agencies have under section 7(c) of the Act and the conditions under which a biological assessment must be prepared by the lead Federal agency or its designated non-Federal representative. Informal consultation may be utilized prior to a written request for formal consultation to exchange information and resolve conflicts with respect to a listed species. If a biological assessment is required, and it is not initiated within 90 days of your receipt of this letter, you should informally verify the accuracy of this list with our office. If, through informal consultation or development of a biological assessment, or both, you determine that the proposed action is not likely to adversely affect the listed species, and the Service concurs in writing, then the consultation process is terminated and formal consultation is not required.

We recommend land clearing (or other surface disturbance) be timed to avoid potential destruction of active bird nests or young of birds that breed in the area. Such destruction may be in violation of the Migratory Bird Treaty Act (MBTA) (15 U.S.C. 701-718h). Under the MBTA, active nests (nests with eggs or young) of migratory birds may not be harmed, nor may migratory birds be killed. Therefore, we recommend land clearing be conducted outside the avian breeding season. If this is not feasible, we recommend a qualified biologist survey the area prior to land clearing. If active nests are located, or if other evidence of nesting (mated pairs, territorial defense, carrying nesting material, transporting food) is observed, a protective buffer (the size

depending on the requirements of the species) should be delineated and the entire area avoided to prevent destruction or disturbance to nests until they are no longer active.

Because this project crosses wash areas, we ask that you be aware of potential impacts project activities may have on waters of the United States. Discharge of dredged or fill material into wetlands or waters of the United States is regulated by the Army Corps of Engineers pursuant to section 404 of the Clean Water Act. We recommend you contact the Regulatory Section of the Army Corps of Engineers' Reno Field Office (300 Booth Street, Room 2120, Reno, Nevada 89509, 775-784-5304) regarding the possible need for a permit.

Please contact Debi Johnson of the Southern Nevada Field Office, at 702-515-5230, if you have questions regarding this correspondence.

Sincerely,

Cynthia T. Martinez

for Robert D. Williams
Field Supervisor

Enclosures

cc:
Jeannette Owen, Parsons Harland Bartholomew & Associates, Sacramento, California

ENCLOSURE A

LISTED SPECIES AND SPECIES OF CONCERN THAT MAY OCCUR WITHIN THE PROPOSED IVANPAH ENERGY CENTER PROJECT, CLARK COUNTY, NEVADA

File Number: 1-5-02-SP-481
June 27, 2002

Listed Species

Reptile

T	Desert tortoise	*Gopherus agassizii*

T = Threatened

Species of Concern

Mammals

Pale Townsend's big-eared bat	*Corynorhinus townsendii pallescens*
Spotted bat	*Euderma maculatum*
Greater western mastiff-bat	*Eumops perotis californicus*
Allen's big-eared bat	*Idionycteris phyllotis*
California leaf-nosed bat	*Macrotus californicus*
Small-footed myotis	*Myotis ciliolabrum*
Long-eared myotis	*Myotis evotis*
Fringed myotis	*Myotis thysanodes*
Cave myotis	*Myotis velifer*
Long-legged myotis	*Myotis volans*
Yuma myotis	*Myotis yumanensis*
Big free-tailed bat	*Nyctinomops macrotis*

Birds

Western burrowing owl	*Athene cunicularia hypugea*
American peregrine falcon	*Falco peregrinus anatum*

Reptiles

Banded Gila monster	*Heloderma suspectum cinctum*
Chuckwalla	*Sauromalus obesus*

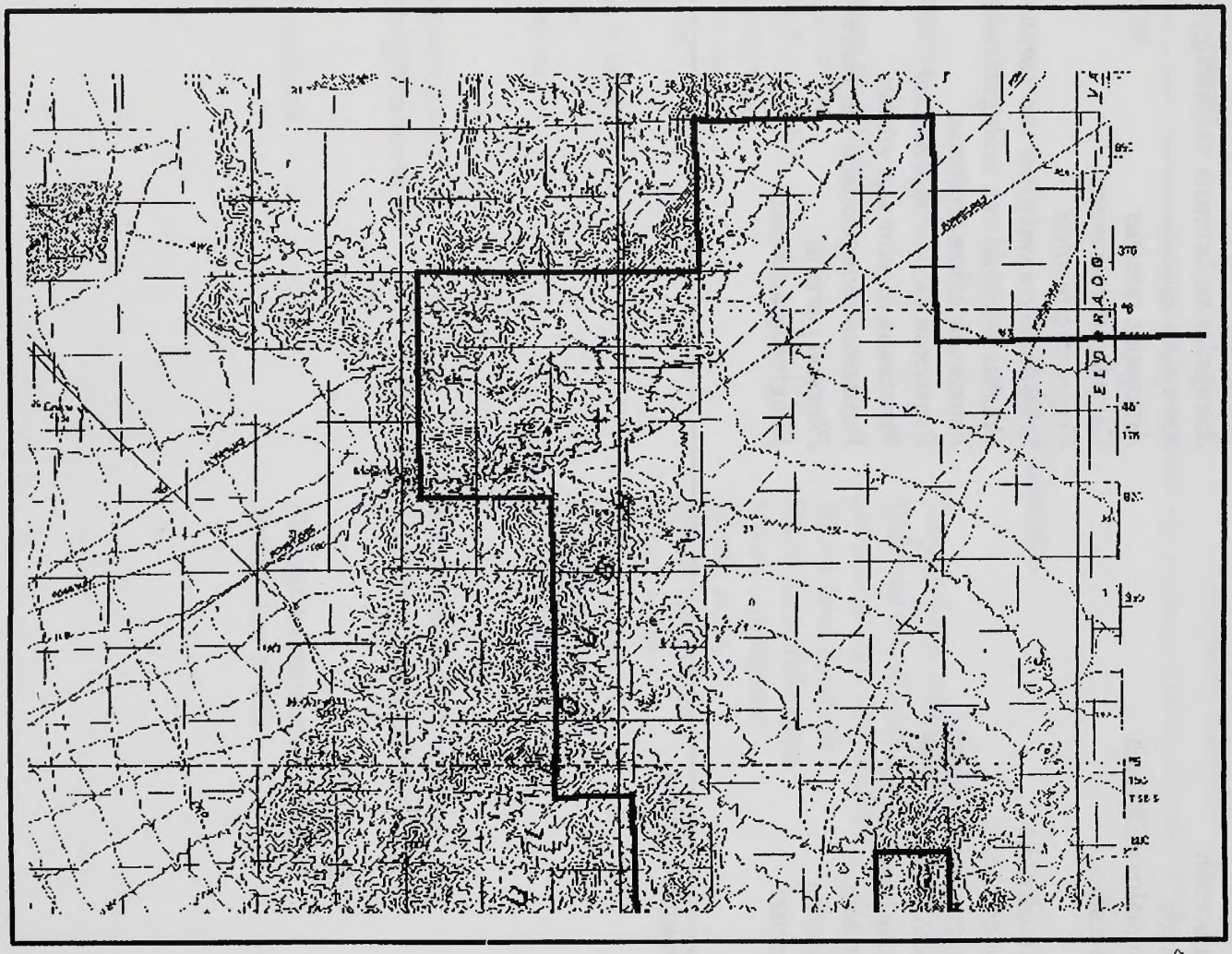
ENCLOSURE A (cont)
File Number: 1-5-02-SP-481
June 27, 2002

Invertebrates	
Spring Mountains comma skipper	*Hesperia comma mojavenis*
Nevada admiral	*Limenitus weidemeyerii nevadae*
Carole's silverspot butterfly	*Speyeria zerene carolae*
Plants	
White bearpoppy	*Arctomecon merriamii*
Clokey milkvetch	*Astragalus aequalis*
Black woolypod	*Astragalus funereus*
Halfring milkvetch	*Astragalus mohavensis* var. *hemigyrus*
Nye milkvetch	*Astragalus nyensis*
Spring Mountains milkvetch	*Astragalus remotus*
Clokey pincushion	*Coryphantha vivipara*
Catseye *	*Cryptantha insolita*
Las Vegas buckwheat	*Eriogonum corymbosum* var. *aureum*
Blue Diamond cholla	*Opuntia whipplei* var. *multigeniculata*
White-margined beardtongue	*Penstemon albomarginatus*
Yellow twotone beardtongue	*Penstemon bicolor* ssp. *bicolor*
Rosy twotone beardtongue	*Penstemon bicolor* ssp. *roseus*
Jaeger beardtongue	*Penstemon thompsoneae* var. *jaegeri*
Parish's phacelia	*Phacelia parishii*
Utah spikemoss	*Selaginella utahensis*

* Taxa presumed extinct

ESRI ArcExplorer 1.1

Desert Tortoise Critical Habitat



tortcrithab

N

Enclosure B

Monday, Jun 24 2002

APPENDIX E
SUMMARY OF BUREAU OF LAND MANAGEMENT (BLM) STIPULATIONS

Terms and Condition of Biological Opinion in Area B
File No. 1-5-97-F-251

In order to be exempt from the prohibitions of section 9 of the Act, the applicant must comply with the following terms and conditions, which implement the reasonable and prudent measures described below. These terms and conditions are non-discretionary.

1. Measures shall be taken to minimize take of desert tortoises due to project-related activities.

 a. A qualified tortoise biologist, or designee of the Bureau, shall present a tortoise-education program to all foremen, workers, and other employees working on the project. The program will include information on the life history of the desert tortoise, legal protection for desert tortoises, penalties for violations of Federal and State laws, general tortoise activity patterns, reporting requirements, measures to protect tortoises, terms and conditions of the biological opinion, and personal measures employees can take to promote the conservation of desert tortoises. The definition of "take" will also be explained. Workers will be encouraged to carpool to and from project sites. The program shall be approved by the Service prior to implementation. Specific and detailed instructions will be provided on the proper techniques to capture and move tortoises which appear onsite, in accordance with Service-approved protocol. Currently, the Service-approved protocol is *Guidelines for Handling Desert Tortoise during Construction Activities* (Desert Tortoise Council 1994, revised 1999).

 b. A speed limit of 25 miles per hour shall be required for all vehicles on the project site and unposted dirt access roads.

 c. During construction activities, tortoise burrows should be avoided whenever possible. If a tortoise is found onsite during project activities which may result in take of the tortoise (e.g., in harms way), such activities shall cease until the tortoise moves, or is moved, out of harms way. The tortoise shall be moved by a qualified tortoise biologist, or individual trained in the proper technique of handling and moving desert tortoises. All workers will also be instructed to check underneath all vehicles before moving such vehicles. *Tortoises often take cover under vehicles.*

 d. The project shall require a tortoise biologist onsite during construction activities, unless determined by the Bureau and Service that an onsite biologist is not necessary. Unless the area is fenced and cleared, the project will require an onsite biologist during construction of the project during the tortoise active period (March 1 through October 31), and a biologist on call during the tortoise inactive period (November 1 through February 28/29).

 e. The Bureau must approve the selected consulting firm/biologist to be used by the applicant to implement the terms and conditions of the biological opinion or permit issued by the Bureau. Any biologist and/or firm not previously approved must submit a curriculum vitae and be approved by the Bureau before authorized to represent the Bureau in meeting compliance with the terms and conditions of the biological opinion. Other personnel may assist with implementing mitigation measures, but must be under direct field supervision by the approved qualified biologist.

In accordance with *Procedures for Endangered Species Act Compliance for the Mojave Desert Tortoise* (Service 1992), a qualified desert tortoise biologist should possess a bachelor's degree in biology, ecology, wildlife biology, herpetology, or closely related fields as determined by the Bureau. The biologist must have demonstrated prior field experience using accepted resource agency techniques to survey for desert tortoises and tortoise sign, which should include a minimum of **60 days** field experience. All tortoise biologists shall comply with the Service-approved handling protocol (Desert Tortoise Council 1994, revised 1999) prior to conducting tasks in association with terms and conditions of the biological opinion. In addition, the biologist shall have the ability to recognize and accurately record survey results.

f. All project areas including construction sites, access routes, staging areas, and fencelines, will be cleared by a qualified biologist before the start of construction or ground disturbance. The parcel shall be surveyed for desert tortoise using survey techniques which provide 100-percent coverage. During the tortoise active season, the pre-construction clearance shall be no more than **3 days** before initiation of construction. During the tortoise inactive season, the pre-construction clearance shall be within 5 days before work begins.

g. Desert tortoises encountered experiencing heat stress will be placed in a tub, by a qualified tortoise biologist, with one inch of water in an environment with a temperature between 76 degrees F and 95 degrees F for several hours, until heat stress symptoms are no longer evident.

h. Tortoises and nests found shall be relocated by a qualified tortoise biologist in accordance with Service-approved protocol (Desert Tortoise Council 1994, revised 1999). Burrows containing tortoises or nests will be excavated by hand, with hand tools, to allow removal of the tortoise or eggs.

i. Tortoises that are moved offsite and released into undisturbed habitat on public land, must be placed in the shade of a shrub, in a natural unoccupied burrow similar to the hibernaculum in which it was found, or in an artificially constructed burrow in accordance with Desert Tortoise Council (1994, revised 1999).

j. Desert tortoises moved during the tortoise inactive season or those in hibernation, regardless of date, must be placed into an adequate burrow; if one is not available, one will be constructed in accordance with Desert Tortoise Council (1994, revised 1999). During mild temperature periods in the spring and early fall, tortoises removed from the site will not necessarily be placed in a burrow.

k. The project will require temporary fencing. Fenced areas will require an initial tortoise clearance of the fenceline prior to fence construction, and a tortoise clearance following fence construction. Project sites to be fenced with permanent tortoise-proof fencing must be fenced prior to the commencement of surface disturbance activities within the project site. Fencing will consist of 1-inch horizontal by 2-inch vertical mesh. The mesh will extend at least 18 inches above ground and, where feasible, 6 inches below ground. In situations where it is not feasible to bury the fence, the lower 6-12 inches of the fence shall be bent at a 90-degree angle towards the potential direction of encounter with tortoise and covered with cobble or other suitable material to ensure that tortoise or other animals

cannot dig underneath, thus creating gaps through which tortoises may traverse. The height of tortoise-proof fencing will be a minimum of 18 inches above ground. The fence shall be inspected, and zero clearance maintained between the bottom of the fence and the ground.

l. If fence construction occurs during the tortoise active season, a qualified tortoise biologist shall be onsite during construction of the tortoise-proof fence to ensure that no tortoises are harmed. If the fence is constructed during the tortoise inactive season, a biologist will thoroughly examine the proposed fenceline and burrows for the presence of tortoises no more than 5 days before construction. Any desert tortoises or eggs found in the fenceline will be relocated offsite by a qualified tortoise biologist in accordance with approved protocol. Tortoise burrows that occur immediately outside of the fence alignment that can be avoided by fence construction activities shall be clearly marked to prevent crushing.

Following Fence Construction: Prior to the commencement of project activities, all desert tortoises shall be removed from the site. A qualified biologist shall oversee the survey for and removal of tortoises using techniques providing 100-percent coverage of all areas. Two complete passes of 100-percent coverage will be accomplished. All desert tortoise burrows, and other species burrows which may be used by tortoises, will be examined to determine occupancy of each burrow by desert tortoises. Tortoise burrows shall be cleared of tortoises and eggs, and collapsed. Any desert tortoises or eggs found in the fenced area will be removed under the supervision of a qualified tortoise biologist in accordance with Service protocol.

m. After a project has been fenced and a tortoise clearance completed, if the operator encounters a desert tortoise in imminent danger, the operator shall move the tortoise out of harm's way and on to adjacent Bureau land. If the tortoise cannot be avoided or moved out of harm's way onto Bureau land, it shall be placed in a cardboard box or other suitable container and held in a shaded area until the Clark County pickup service or Bureau personnel can retrieve the tortoise.

n. On phased development projects, the operator may have the option with concurrence of the Bureau of initially fencing less than the total project acreage. The fenced area will be enlarged as the disturbance expands. To ensure that no tortoises are harmed, each new segment of fence will be constructed under the provision described in Terms and Conditions **1.k.** and **1.l.** above. Payment of the mitigation fee identified in Term and Condition **3** below, will be required prior to surface disturbance of each phase.

o. The operator shall inspect the fencing at least on a quarterly basis, to insure that it is in compliance with the standards described in Term and Condition **1.k** and **1.l.** above, and shall perform maintenance when needed including removing trash, sediment accumulation, and other debris. Temporary fencing shall be removed at the end of the construction activity. Permanent fencing may be removed upon termination and reclamation of the project, or when it is determined by the Bureau and Service that the fence is no longer necessary. Monitoring and maintenance shall include regular removal of trash and sediment accumulation and restoration of zero ground clearance between the ground and the bottom of the fence, including re-covering the bent portion of the fence if not buried.

p. Where the Bureau allows or requires the installation of a temporary tortoise-proof fence, the fence shall include as much of the proposed construction site as feasible. This may in some cases require the installation of temporary fencing along access routes. Typical fence design should consist of 1-inch mesh or 1-inch horizontal by 2-inch vertical mesh (hardware cloth or plastic) and be installed flush with ground and extend at least 18 inches above ground. Temporary tortoise-proof fencing should not be buried.

2. Measures shall be taken to minimize predation on tortoises by ravens drawn to the project area.

 a. A litter-control program shall be implemented, by the applicant, to minimize predation on tortoises by ravens drawn to the project site. This program will include the use of covered, raven-proof trash receptacles, removal of trash from the construction site to the trash receptacles following the close of each work day, and proper disposal of trash in a designated solid waste disposal facility. Vehicles hauling trash to the landfill and leaving the landfill must be secured to prevent litter from blowing out along the road.

3. Measures shall be taken to minimize destruction of desert tortoise habitat, such as soil compaction, erosion, or crushed vegetation, due to project-related activities.

 a. If possible, overnight parking and storage of equipment and materials, including stockpiling, shall be within previously disturbed areas or areas to be disturbed which have been cleared by a tortoise biologist. If not possible, areas for overnight parking and storage of equipment shall be designated by the tortoise biologist which will minimize habitat disturbance.

 b. All vehicle traffic will be restricted to existing access roads. New access roads will be created only when absolutely necessary and only when approved by the Bureau. Routes for new access roads will be flagged by the tortoise biologist prior to surface disturbance.

 c. Project activity areas will be clearly marked or flagged at the outer boundaries before the onset of construction. All activities shall be confined to designated areas. Blading of vegetation will occur only to the extent necessary and shall be limited to areas designated for that purpose by the Bureau or tortoise biologist.

 d. Remuneration fees apply to future disturbance in tortoise habitat. Past disturbance or disturbance on land not considered to be tortoise habitat by a tortoise biologist, and approved by the Bureau, are not assessed a tortoise remuneration fee. Remuneration fees will be used to fund management actions which are expected to benefit the desert tortoise. Actions may involve: Habitat acquisition; population or habitat enhancement or protection; research that increases our knowledge of desert tortoise biology, habitat requirements, or factors affecting habitat attributes; reducing loss of individual animals, documenting the species' current status and trend, and preserving distinct population attributes or any other action described in the Management Oversight Group's report titled *Compensation for the Desert Tortoise* (Hastey, et al. 1991) or Desert Tortoise (Mojave population) Recovery Plan (Service 1994).

 e. Payment of a remuneration fee, currently set at $633.00 per acre, will be required for

all projects prior to issuance of the lease, permit, notice to proceed, or other Bureau authorization, with the following exceptions:

f. For Projects Other Than Community Sand And Gravel Pits (including mineral material sales): Prior to issuance of the permit, right-of-way grant, lease (except R&PP leases), notice to proceed, or approval of any action to be covered under the biological opinion, and prior to any surface-disturbing activity associated with the proposed project, including R&PP leases, the project proponent shall pay a remuneration fee of $633.00 for each acre of surface disturbance. For phased projects (e.g., mineral material sales), fees will be paid prior to surface disturbance associated with each phase. This rate will be indexed for inflation based on the Bureau of Labor Statistics Consumer Price Index for All Urban Consumers (CPI-U) on January 31 of each year, beginning January 31, 1998. Fees assessed or collected for projects covered under this biological opinion after January 31st of each year will be adjusted based on the CPI-U. Information on the CPI-U can be found on the Internet at: *http://stats.bls.gov/news.release/cpi.nws.htm.*

The surface disturbance for this project is XX.X acres. The total fee for this project is $XXX.XX ($633.00 x XX.X acres).

This fee will be paid directly to the Desert Tortoise Public Lands Conservation Fund (Account Number 730-9999-2315), administered by Clark County or any other administrator approved by the Bureau and Service. The administrator serves as the banker of these funds and receives no benefit from administering these funds. These funds are independent of any other fees collected by Clark County for desert tortoise conservation planning.

The payment shall be accompanied by the **Section 7 Fee Payment Form** (Attachment A) and completed by the payee. The project proponent or applicant may receive credit for payment of such fees and deduct such costs from desert tortoise impact fees charged by local government entities. Payment shall be by certified check or money order payable to Clark County Treasurer (or other administrator named by the Bureau and Service), and delivered to:

Clark County Habitat Conservation Plan Administrator
Department of Comprehensive Planning
Clark County Government Center, Third floor
500 South Grand Central Parkway
Las Vegas, Nevada 89155- 1712

In addition, a copy of the Section 7 Fee Payment Form will be accompanied with a payment verification and delivered to:

The Bureau of Land Management
Las Vegas Field Office
4701 North Torrey Pines Drive
Las Vegas, Nevada 89130
Attn: Assistant Field Manager, Lands Division

h. Projects resulting in residual impacts will require the submission of a

Bureau-approved reclamation plan, unless determined by the Bureau and Service that reclamation rehabilitation is not necessary. The reclamation plan will describe objectives and methods to be used, species of plants and/or seed mixture to be used, time of planting, success standards, and follow-up monitoring. Depending upon the size and location of the project, reclamation could simply involve recontouring, if needed, and rehabilitation and restriction of access points or could involve reclamation over the entire area of surface disturbance. Reclamation will be addressed on a case-by-case basis.

4. Measures shall be taken to ensure compliance with the reasonable and prudent measures, terms and conditions, reporting requirements, and reinitiation requirements contained in the biological opinion.

 a. The project applicant shall notify the Bureau at least **10 days** before initiation of the project. Notification shall be made to the Bureau's wildlife staff at (702) 515-5291.

 b. All appropriate NDOW permits or letters of authorization shall be acquired prior to handling desert tortoises and their parts, prior to initiation of any activity which may require handling tortoise.

 c. The project proponent must submit a document to the Bureau (Assistant Field Manager, Lands Division) within **30 days** of completion of the project showing the number of acres disturbed; remuneration fees paid; and number of tortoises taken, which includes capture and displacement, killed, injured, and harassed by other means, during implementation of programmatic actions.

 d. For tortoise removals in Clark County, the applicant shall make prior arrangements with Clark County's tortoise pickup service (702/593-9027) at least **10 days** prior to the commencement of tortoise collection. Outside Clark County, initial notification shall be made to the Bureau as stated in Term and Condition **4.b.** above.

BLM Standard Stipulations
As of 9/5/02

Mitigation Measures/Stipulations

1. (List the appropriate document here) Holder will comply with the stipulations, terms, and conditions of the EA or EIS (#)
for_____, on file
at the Bureau of Land Management, Las Vegas Field Office.

2. **Sixty (60) days prior to construction activities**, cacti and yucca that would be impacted by the project will be salvaged and appropriately transported. All salvaging actions will be coordinated with the Authorized Officer, who will determine how the plants will be used in revegetation. These activities would be coordinated with the Forestry program at BLM.

In order to facilitate re-vegetation the first three inches of top soil is to be stock piled in areas where ground disturbance occurs, and then the stock piled material would then be placed on top of the berms. The seeds within the soil should provide a source for future plant germination.

Mitigation measures for potential impacts to the Las Vegas bear poppy will be determined on a case-by-case basis whenever this species is found in a proposed project area. These activities would be coordinated with the Authorized Officer.

3. Land surface treatment for areas previously disturbed: Following excavation, trenches will be backfilled with the excavated soil. The soil will be distributed and contoured evenly over the surface of the disturbed area. The soil surface will be left rough to help reduce potential wind erosion.

4. Land surface treatment for areas previously undisturbed: Strip the top six inches of soil material with associated plant material over all surfaces to be disturbed by construction. Stockpile this material along the course of construction (inside the right-of-way). At the conclusion, including trench backfilling and compaction, replace the stockpiled soil with plant debris uniformly back on the surface of the disturbed area.

5. The Holder shall be responsible for weed control on disturbed areas within the limits of the right-of-way. The Holder is responsible for consultation with the Authorized Officer and/or local authorities for acceptable weed control methods within limits imposed in the grant stipulations.

6. Any cultural and/or paleontological resources (historic or prehistoric site or object) are discovered by the Holder, or any person working on his behalf, on public on Federal land shall be immediately reported to the Authorized Officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the

Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The Holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the Authorized Officer after consulting with the Holder. Holder shall be responsible for the resultant mitigation costs.

7. Holder will comply with the terms and conditions of the Biological Opinion, File No. 1-5-96-F-23R.2, on file at the Bureau of Land Management, Las Vegas Field Office. In order to be exempt from the prohibitions of section 9 of the Act, BLM must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary.

a. Although not required, applicants or project proponents may voluntarily choose to search for and remove tortoises from lands to be disturbed within the project [programmatic] area. However, such applicants or project proponents who choose to do voluntary search and removal shall contract or appoint a qualified individual to oversee the process. Only individuals trained to handle desert tortoises in accordance with Service-approved guidelines shall be authorized to handle desert tortoises, unless they are in imminent danger. Currently, the Service-approved handling guidelines are described in *Guidelines for Handling Desert Tortoises during Construction Projects* (Desert Tortoise Council 1994, revised 1999). For tortoise removals, the applicant shall make arrangements with Clark County's tortoise pick-up service (702/593-9027) at least 10 days prior to the commencement of tortoise collection. Tortoises shall not be placed on private lands or lands under management by an agency other than BLM, without written permission of the landowner or agency.

b. If a tortoise is in imminent danger with immediate death or injury likely (such as from an approaching vehicle or equipment), and the tortoise has been given the opportunity to move but has withdrawn in its shell and is not moving, onsite personnel may capture the tortoise and place it in a clean unused cardboard box or similar container. Clark County's tortoise pick-up service will be notified immediately. The contained tortoise will be held in the shade or temperature-controlled environment until removed by the pick-up service.

c. BLM has established an exclusionary zone within the project [programmatic] area which is identified as having a low probability for desert tortoises to occur (Figure 1). Desert tortoise surveys, removal efforts, and remuneration fees will not be required for projects within the exclusionary zone.

d. Payment of $633 per acre, as indexed for inflation, shall be required for projects occurring outside of the exclusionary zone prior to issuance of the lease, permit, or other BLM authorization, with the following exceptions:

(1) R&PP leases would be issued prior to payment of remuneration fees. Payment of fees on R&PP leases shall be deferred until immediately prior to surface disturbance. If the R&PP project consists of phased development of the

lease area, fees shall be paid for each phase immediately prior to surface disturbance. Likewise, road rights-of-way issued to local governments (e.g., Clark County, cities of Las Vegas, North Las Vegas, Henderson, Mesquite, and Boulder City) may be issued before payment of fees. If payment of remuneration fees are postponed for any project, the applicant must submit a request for a Notice to Proceed before surface disturbance. The applicant shall provide BLM with proof of payment of the required remuneration fees, before BLM issues the Notice to Proceed. Both of these actions shall occur prior to surface disturbance. A Notice to Proceed shall be issued for each segment of right-of- way as payment is made.

(2) Because many mining plans of operation are phased in over a number of years, remuneration fees shall be paid for each phase immediately prior to surface disturbance.

(3) Projects impacting less than 0.25 acres will not be assessed a remuneration fee.

(4) Mineral material sales will be charged a fee of 25 cents per yard up to the equivalent of $550 per acre of disturbance.

e. An assessment of $633, as indexed for inflation, will be applied for each acre of surface disturbance (with the exceptions described in number 2.b.4 above). **(UPDATE THE FOLLOWING PARAGRAPH TO REFLECT THE NEXT ADJUSTMENT DATE)** ***This rate will be indexed for inflation based on the Bureau of Labor Statistics Consumer Price Index for All Urban Consumers (CPI-U) on January 31st of each year. The next adjustment shall occur on January 31, 2003, and will become effective March 1, 2003. Fees assessed or collected for projects covered under this biological opinion after January 31st of each year will be adjusted based on the CPI-U. Information on the CPI-U can be found on the Internet at: http://stats.bls.gov/news.release/cpi.nws.htm***

f. This fee will be paid directly to the Desert Tortoise Public Lands Conservation Fund Number 730-9999-2315, administered by Clark County or any other administrator approved by the Service. The administrator serves as the banker of these funds and receives no benefit from administering these funds. These funds are independent of any other fees collected by Clark County under the CCDCP.

The payment shall be accompanied by the *Section 7 Fee Payment Form* (attachment), and completed by the payee. Payment shall be by certified

check or money order payable to Clark County (or other administrator named by the Service), and delivered to:

Clark County
Department of Comprehensive Planning
Attn: Christina Gibson
500 South Grand Central Parkway, Third Floor
Las Vegas, Nevada 89155-1712

g. Remuneration fees will be used to fund management actions that are expected to provide a direct and indirect benefit to the desert tortoise over time. Actions may involve: Habitat acquisition; population or habitat enhancement or protection; research that increases our knowledge of desert tortoise biology, habitat requirements, or factors affecting habitat attributes; reducing loss of individual animals, documenting the species' current status and trend, and preserving distinct population attributes or any other action described in the Management Oversight Group's report entitled *Compensation for the Desert Tortoise* (Hastey et al. 1991) or the Desert Tortoise Recovery Plan (Service 1994).

If the applicant or project proponent desires, tortoises encountered during construction may be moved out of harm's way to adjacent habitat in accordance with Service-approved protocol described in Term and Condition 1 above. If adjacent habitat is not available, arrangements must be made with the Clark County pick-up service for disposition of collected tortoises.

h. All necessary information sheets and forms shall be completed by BLM prior to authorizing specific actions (See Attachment A). These forms will be modified as necessary with the Service's concurrence.

i. BLM will keep an up-to-date log of all actions taken under this consultation, including acreage affected, voluntary survey and removal activities (including reported number of desert tortoises injured, killed, or removed from the project site), and fees paid for each project. BLM will continue to provide the above information to the Service's Las Vegas office on an annual basis. Information will be cumulative throughout the life of this consultation.

8. Holder shall construct, maintain, operate and/or modify structures and facilities as directed by the Field Manager to protect and minimize adverse effects upon raptors and other wildlife.

9. Holder shall report wildlife fatalities, including raptor electrocutions, that are discovered or near project facilities.

10. **LIABILITY**

The Holder shall comply with all applicable local, state, and federal air, water, hazardous substance, solid waste, or other environmental laws and regulations, existing or hereafter enacted or promulgated. To the full extent permissible by law, the Holder agrees to indemnify and hold harmless, within the limits, if any, established by state law (as state law exists on the effective date of the right-of-way/lease), the United States against any liability arising from the Holder's use or occupancy of the right-of way/lease area, regardless of whether the Holder has actually developed or caused development to occur on the right-of-way/lease area, from the time of the issuance of this right-of-way/lease to the Holder, and during the term of this right-of-way/lease. This agreement to indemnify and hold harmless the United States against any liability shall apply without regard to whether the liability is caused by the Holder, its agents, contractors, or third parties. If the liability is caused by third parties, the Holder will pursue legal remedies against such third parties, as if the Holder were the fee owner of the right-of-way/lease area.

Notwithstanding any limits to the Holder's ability to indemnify and hold harmless the United States which may exist under state law, the Holder agrees to bear all responsibility (financial or other) for any and all liability or responsibility of any kind or nature assessed against the United States, arising from the Holder's use or occupancy of the right-of way/lease area, regardless of whether the Holder has actually developed or caused development to occur on the right-of-way/lease area, from the time of the issuance of this right-of-way/lease to the Holder, and during the term of this right-of-way/lease.

11. **AIR QUALITY**

The Holder shall not violate applicable air standards or related facility siting standards established by or pursuant to applicable federal, state, or local laws or regulations. The Holder shall be responsible for dust abatement within the limits of the right-of-way/lease area and is responsible for obtaining all necessary permits from appropriate authorities for acceptable dust abatement and control methods (e.g., water, chemicals). The Holder shall be solely responsible for all violations of any air quality permit, law or regulation, as a result of its action, inaction, use or occupancy of the right-of-way/lease area.

Notwithstanding whether a violation of any air quality permit, law or regulation results, the Holder will cooperate with the Authorized Officer in implementing and maintaining reasonable and appropriate dust control methods in conformance with law and appropriate to the circumstances, at the sole cost of the Holder.

Prior to relinquishment, abandonment, or termination of this right-of-way/lease, the Holder shall apply reasonable and appropriate dust abatement and control measures, designed to be effective over the long-term (e.g., rock mulch or other means) acceptable to the Authorized Officer, to all disturbed areas.

12. **HAZARDOUS MATERIAL**

No hazardous material, substance, or hazardous waste, (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, *et seq*., or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, *et seq*.) shall be used, produced, transported, released, disposed of, or stored within the right-of-way/lease area at any time by the Holder. The Holder shall immediately report any release of hazardous substances (leaks, spills, etc.), caused by the Holder or third parties, in excess of the reportable quantity as required by federal, state, or local laws and regulations. A copy of any report required or requested by any federal, state or local government agency as a result of a reportable release or spill of any hazardous substances shall be furnished to the Authorized Officer concurrent with the filing of the reports to the involved federal, state or local government agency.

The Holder shall immediately notify the Authorized Officer of any release of hazardous substances, toxic substances, or hazardous waste on or near the right-of-way/lease area, potentially affecting the right-of-way/lease area, of which the Holder is aware.

As required by law, Holder shall have responsibility for and shall take all action(s) necessary to fully remediate and address the hazardous substance(s) on or emanating from the right-of way/lease area.

13. **SOLID WASTE**

The right-of-way/lease area shall be maintained in a sanitary condition at all times; waste materials at those sites shall be disposed of promptly at an approved waste disposal site. "Waste" as used in this paragraph shall mean all discarded matter of any kind.

14. Holder shall mark the exterior boundaries of the ROW with stake and/or lath at 100 to 200 foot intervals. The intervals may be varied at the time of staking at the discretion of the Authorized Officer. The tops of the stakes and/or laths will be painted and the laths flagged in a distinctive color as determined by the Holder. Holder shall maintain all boundary stakes and/or laths in place until final cleanup and restoration is completed.

15. Holder shall conduct all activities associated with construction, operation, and termination of this right-of-way within its authorized limits.

16 Holder shall maintain the right-of-way in a safe, useable condition, as directed by the Authorized Officer. A regular maintenance program shall include, but is not limited to, soil stabilization.

17. The Holder shall provide the Authorized Officer (the Assistant Field Manager, Division of Lands) with data in a format compatible with the Bureau's Arc-Info Geographic Information System to accurately locate and identify the right-of-way, within 90 days of construction completion.

Acceptable data formats are:
(1) Corrected Global Positioning System files with sub-meter accuracy or better, in NAD 27 or NAD 83;
(2) An AUTOCAD dxf file;
(3) Or ARCInfo export files on a CD ROM, 100 mb ZIP disk or 1gb Jazz disk.

Data may be submitted in any of the following formats:
(1) ARCInfo export file;
(2) On a 3.5 inch floppy disk in compressed or uncompressed format. Compressed or ZIPed data must include a copy of the UNZIP.EXE file on the disk.
All data shall include metadata for each coverage, and conform to the Content Standards for Digital Geospatial Metadata Federal Geographic Data Committee standards. Contact Mr. Robert Taylor, GIS Coordinator at (702) 515-5051.

18. The holder shall protect all survey monuments found within the authorization area. Survey monuments include, but are not limited to, General Land Office and Bureau of Land Management Cadastral Survey Corners, reference corners, witness points, U.S. Coast and Geodetic Survey benchmarks and triangulation stations, military control monuments, and recognizable civil (both public and private) survey monuments. If any of the above are to be disturbed during operations the holder shall secure the services of a Professional Land Surveyor or Bureau cadastral surveyor to perpetuate the disturbed monuments and references using surveying procedures found in the Manual of Instructions for the Survey of the Public Lands of the United States and NRS Chapter 329, Perpetuation of Corners. The holder shall record such survey in the appropriate county and send a copy to the authorized officer. If the Bureau cadastral surveyors or other Federal surveyors are used to restore the disturbed survey monuments, the holder shall be responsible for the survey cost.

19. The grant would be issued subject to all valid and existing rights.

20. Between the periods of March 15 and July 30, surveys for nests of migratory birds shall be completed prior to disturbance. Should a nest with nestlings be found, they will be avoided until the birds have fledged (left the nest). If disturbance in Riparian or at higher elevations is required, Holder shall consult with the Authorized officer prior to proceeding.

21. Use of pesticides shall comply with the applicable Federal and state laws. Pesticides shall be used only in accordance with their registered uses and within limitations imposed by the Secretary of the Interior. Prior to the use of pesticides, the Holder shall obtain from the Authorized Officer written approval of a plan showing the type and quantity of material to be used, pest(s) to be controlled, method of application location of storage and disposal of containers and any other information deemed necessary by the Authorized Officer. The plan must provide the type and quantity of material to be used; the pest, insect, storage and disposal of containers; and other information that the Authorized Officer may require. The plan shall be submitted no later than December 1 of any calendar year that covers the proposed activities for the next fiscal year.

Pesticides shall not be permanently stored on public lands authorized for use under this grant/permit.

22. Holder shall maintain copy of the authorization along with stipulations on construction site at all times.

Terms and Conditions of Biological Opinion in Area C
File No. 1-5-97-F-251

In order to be exempt from the prohibitions of section 9 of the Act, the applicant must comply with the following terms and conditions, which implement the reasonable and prudent measures described below. These terms and conditions are non-discretionary.

1. Measures shall be taken to minimize take of desert tortoises due to project-related activities.

 a. The Bureau, or their designee, shall provide a fact sheet to all foremen, workers, and other employees working on the project. The fact sheet will include information on the life history of the desert tortoise, legal protection for desert tortoises, penalties for violations of Federal and State laws, general tortoise activity patterns, reporting requirements, measures to protect tortoises, terms and conditions of the biological opinion, and personal measures employees can take to promote the conservation of desert tortoises. The definition of "take" will also be explained. Workers are encouraged to carpool to and from project site. The facts sheet shall be approved by the Service prior to implementation.

 b. A speed limit of 25 miles per hour shall be required for all vehicles on the project site and unposted dirt access roads.

 c. During construction activities, tortoise burrows should be avoided whenever possible. If a tortoise is found onsite during project activities which may result in take of the tortoise (e.g., in harms way), such activities shall cease until the tortoise moves, or is moved, out of harms way. The tortoise shall be moved by either a qualified tortoise biologist or individual trained in the proper technique of handling and moving desert tortoises. All workers will also be instructed to check underneath all vehicles before moving such vehicles. *Tortoises often take cover under vehicles.*

 d. A tortoise biologist shall not be required onsite during construction activities unless determined by the Bureau, or Bureau and Service, that an onsite biologist is necessary.

 e. The search for, and removal of, tortoises (i.e., clearance) is voluntary, unless required by the Bureau, or Bureau and Service. If tortoise clearance is not required, applicants or project proponents may voluntarily choose to search for and remove tortoises from lands to be disturbed within the project area. However, applicants/project proponents that voluntarily choose to clear project areas of desert tortoises, shall follow measures required in terms and conditions of the biological opinion. Specific and detailed instructions will be provided on the proper techniques to capture and move tortoises which appear onsite, in accordance with Service-approved protocol. Currently, the Service-approved protocol is Desert Tortoise Council 1994, revised 1996.

f. The project shall not require fencing unless determined by the Bureau, or Bureau and Service, that fencing is necessary. Projects that generally require fencing are large projects with a high level of ongoing activity, such as gravel pits and airports.

2. Measures shall be taken to minimize predation on tortoises by ravens drawn to the project area.

A litter-control program shall be implemented, by the applicant, to minimize predation on tortoises by ravens drawn to the project site. This program will include the use of covered, raven-proof trash receptacles, removal of trash from the construction site to the trash receptacles following the close of each work day, and proper disposal of trash in a designated solid waste disposal facility. Vehicles hauling trash to the landfill and leaving the landfill must be secured to prevent litter from blowing out along the road.

3. Measures shall be taken to minimize destruction of desert tortoise habitat, such as soil compaction, erosion, or crushed vegetation, due to project-related activities.

a. If possible, overnight parking and storage of equipment and materials, including stockpiling, shall be within previously disturbed areas or areas to be disturbed.

b. All vehicle traffic will be restricted to existing access roads where possible. New access roads will be created only when absolutely necessary and only when approved by the Bureau.

c. Project activity areas will be clearly marked or flagged at the outer boundaries before the onset of construction. All activities shall be confined to designated areas. Blading of vegetation will occur only to the extent necessary and shall be limited to areas designated for that purpose by the Bureau.

d. Remuneration fees apply to future disturbance in tortoise habitat. Past disturbance or disturbance on land not considered to be tortoise habitat by a tortoise biologist, and approved by the Bureau, are not assessed a tortoise remuneration fee. Remuneration fees will be used to fund management actions which are expected to benefit the desert tortoise. Actions may involve: Habitat acquisition; population or habitat enhancement or protection; research that increases our knowledge of desert tortoise biology, habitat requirements, or factors affecting habitat attributes; reducing loss of individual animals, documenting the species' current status and trend, and preserving distinct population attributes or any other action described in the Management Oversight Group's report titled *Compensation for the Desert Tortoise* (Hastey, et al. 1991) or Recovery Plan.

e. Payment of a remuneration fee, currently set at $623.00 per acre, will be required

for all projects prior to issuance of the lease, permit, notice to proceed, or other Bureau authorization, with the following exceptions:

(1) R&PP leases may be issued prior to payment of remuneration fees. Payment of fees on R&PP leases may be deferred until immediately prior to surface disturbance. If the R&PP project consists of phased development of the lease area, fees will be paid for each phase immediately prior to surface disturbance.

(2) Because many mining plans of operation are phased in over a number of years, remuneration fees may be collected prior to the beginning of each phase.

(3) Other projects, such as parks, that are built in phases will be assessed the remuneration fee at the beginning of each phase.

(4) Projects impacting less than 0.25-acres will not be assessed a remuneration fee. The 0.25-acres refers to the total project area and does not apply to each phase of a project.

(5) Mineral material sales and leases will be charged a fee of 25 cents per cubic yard up to the equivalent of $623.00 per acre of disturbance, or will be assessed $623.00 per acre for each phase of disturbance, at the discretion of the Bureau.

(6) Range and wildlife projects impacting less than 0.25-acres per allotment will be exempt from fees. The Bureau and Service shall decide on appropriate offsite habitat enhancement activities on a case-by-case basis for projects impacting more than 0.25-acres. All activities on an allotment count toward the cumulative acreage total for the allotment or wildlife project. Range projects will include fences, pipelines, water hauls, and spring developments.

(7) Unless the Bureau determines that lands proposed for disposal are exempt from mitigation fees under the CCDCP, remuneration fees for land disposal actions will not be required under the biological opinion; consequently, no incidental take will be authorized in association with such actions. Once transferred out of Federal ownership, the owner must comply with the terms of the CCDCP in order to be covered under the incidental take permit issued to Clark County (PRT-801045), or apply for their own incidental take permit under section 10(a)(1)(B) of the Act. Consistent with Bureau policy, the legal title of lands leased under the R&PP Act shall not be transferred out of Federal ownership until appropriate remuneration fees have been collected as specified in Terms and Conditions **3.f.** and **3.g.** below.

The current rate of $623.00 per acre will be indexed for inflation as described in Term and Condition **3.g.** below.

f. For Community Sand And Gravel Sales: Fees will be assessed on the basis of cubic yards of material removed from project site. A fee of 25 cents per cubic yard will be applied until such time as the fees collected are equal to $623.00 per acre for each acre of surface disturbance, or the equivalent rate as indexed for inflation. The fee shall be paid directly to the Bureau while purchasing mineral materials at the Las Vegas District Office. The fee shall be deposited directly into the Bureau's 5320 account.

g. For Projects Other Than Community Sand And Gravel Pits (including mineral material sales): Prior to issuance of the permit, right-of-way grant, lease (except R&PP leases), notice to proceed, or approval of any action to be covered under the biological opinion, and prior to any surface-disturbing activity associated with the proposed project, including R&PP leases, the project proponent shall pay a remuneration fee of $623.00 for each acre of surface disturbance. For phased projects (e.g., mineral material sales), fees will be paid prior to surface disturbance associated with each phase. This rate will be indexed for inflation based on the Bureau of Labor Statistics Consumer Price Index for All Urban Consumers (CPI-U) on January 31 of each year, beginning January 31, 1998. Fees assessed or collected for projects covered under this biological opinion after January 31st of each year will be adjusted based on the CPI-U. Information on the CPI-U can be found on the Internet at: *http://stats.bls.gov/news.release/cpi.nws.htm.* The CPI-U for 1999 was 2.7 percent, which is used to adjust fees assessed and collected in 2000. The rate of $623.00 per acre of disturbance has been indexed for inflation for 2000 by increasing the previous rate of $603.00 per acre, 2.7 percent ($20).

The surface disturbance for this project is (__feet x __feet = ___acres). The total fee for this project is$_____ ($623.00 x __acres)

This fee will be paid directly to the Desert Tortoise Public Lands Conservation Fund (Account Number 730-9999-2315), administered by Clark County or any other administrator approved by the Bureau and Service. The administrator serves as the banker of the funds and receives no benefit from administering these funds. These funds are independent of any other fees collected by Clark County for desert tortoise conservation planning.

The payment shall be accompanied by the **Section 7 Fee Payment Form**, (Attachment) and completed by the payee. The project proponent or applicant may receive credit for payment of such fees and deduct such costs from desert tortoise impact fees charged by local government entities. Payment shall be by certified check or money order payable to Clark County (or other administrator named by the Bureau and Service), and delivered to:

Clark County
Department of Administrative Services
500 South Grand Central Parkway, Sixth Floor
Las Vegas, Nevada 89155-1712

In addition, a copy of the Section 7 Fee Payment Form will be accompanied with a payment verification and delivered to:

The Bureau of Land Management
Las Vegas Field Office
4765 West Vegas Drive
Las Vegas, Nevada 89108
Attn: Assistant District Manager, Non-Renewable Resources

h. Habitat reclamation will only be required if identified through the NEPA process or determined to be appropriate by the Bureau wildlife staff.

4. Measures shall be taken to ensure compliance with the reasonable and prudent measures, terms and conditions, reporting requirements, and reinitiation requirements contained in the biological opinion.

a. The project applicant shall notify the Bureau at least 10 days before initiation of the project. Notification shall be made to the Bureau's wildlife staff at (702) 647-5000.

b. The Bureau wildlife staff (702/647-5000) and Service (702/646-3499) must be notified of any desert tortoise death or injury due to the project implementation by close of business on the following work day.

c. All appropriate NDOW permits or letters of authorization shall be acquired prior to handling desert tortoises and their parts, prior to initiation of any activity which may require handling tortoise.

d. The project proponent must submit a document to the Bureau within 30 days of completion of the project showing the number of acres disturbed; remuneration fees paid; and number of tortoises taken, which includes capture and displacement, killed, injured, and harassed by other means, during implementation of programmatic actions.

e. For tortoise removals in Clark County, the applicant shall make prior arrangements with Clark County's tortoise pickup service (702/593-9027) at least 10 days prior to the commencement of tortoise collection. Outside Clark County, initial notification shall be made to the Bureau as stated in Term and Condition **4.b.** above.

SECTION 7 FEE PAYMENT FORM
Entire form is to be completed by project proponent

Biological Opinion File Number: _____

Species: _____

Location/Address of Fish and Wildlife Service Office that Issued the Opinion:

U. S. Fish and Wildlife Service
Reno Fish and Wildlife Office
1340 Financial Boulevard, Suite 234
Reno, Nevada 89502

Project: _____

Amount of Payment Received: _____

Total Payment Required: _____

Date of Receipt: _____

Check or Money Order Number: _____

Number of Acres to be Disturbed: _____

Project Legal: _____

Project Proponent: _____

Address: _____

Telephone Number: _____

Authorizing Agency: _____

Location/Address: _____

Case Number (if Bureau of Land Management): _____

Make checks payable to: Clark County Treasurer

Deliver check to: Clark County Habitat Conservation Plan Administrator
Department of Comprehensive Planning
Clark County Government Center, Third floor
500 South Grand Central Parkway
Las Vegas, Nevada 89155-8270
(702) 455-4181

If you have questions, you may call the Las Vegas Office of the Fish and Wildlife Service at (702) 646-3499.

Livestock and Livestock Management Facilities

1. Construction contractor(s) performing the work will contact BLM and Cal Baird, the permittee authorized to graze livestock in the Jean Lake grazing allotment, before removing, or in any other way compromising, the integrity of any livestock fencing.
2. Before actually curring a fence, end panel assemblies meeting BLM requirements will be installed into the fence line, on both sides of the proposed cut.
3. Gates, approved by the BLM, LVFO, prior to installation, will be installed immediately when and wherever any fence line is cut.
4. All gates will remain closed, or other prudent measures initiated, to ensure that no livestock move outside the area where they are authorized to be.
5. Temporary fences and other mitigating measures described elsewhere in this document will be employed to ensure livestock are not harmed in any way by construction activities related to this project.
6. Livestock access to BLM approved water sources will not be impeded.
7. The dug out are beneath cattle guard grids will not be filled in. The cattle guard wings shall not be removed or damaged. Should the dug out area beneath a cattle guard grid be filled up, either by deliberate action or by unintentional activities associated with road maintenance or any other construction related activities, the parties involved shall immediately take action to restore functionality to the cattle guard. If the cattle guard wings are removed or damaged for any reason, the party(s) involved shall take immediate action to restore functionality to the cattle guard.

Standard Stipulations for Organized Special Recreation Permit (SRP) Events

- A BLM Special recreation Permit (SRP) does not give permission to cross over or use any private lands during any event. The permittee will be fully responsible for all trespass on and/or damages to private land which result from the conduct of the organized activity.
- The use of unimproved trails and existing roads on BLM land is permitted, but the right to use county, state, or federal roads crossing BLM lands is neither granted, nor implied by the issuance of any permit.
- The permittee will not use telephone, telegraph, or electrical transmission line roads for pits, parking, or checkpoint areas. The permittee will be responsible for the prompt repair of any event-related damages to utilities and related improvements to a condition that is at least as good as the condition just prior to the authorized activity.
- High-speed competitive vehicle (OHV) event organizers will be provided with a post-race road grading map identifying repairs/restorations to improved roads, power line access roads, and rights-of-way (ROWs) on public lands. Post event road grading will be completed within five days following he event, unless prior arrangements have been made. Other repairs and/or restorations will be accomplished within 72 hours after notification by the BLM Authorized Officer. Specific roads which need to be bladed as soon as possible after the event will be highlighted on the approved post-race road grading map.

MARCH 15, 1999

Standard Operating Procedures for the Salvage, Transportation, and Care of Cacti and Yucca on BLM Land

Introduction: Salvaging cacti and yucca from projects that will permanently disturb public land has become standard practice in the Las Vegas Field Office. This policy has had strong support from the general public, who are aware of the high market value of the plants. The following summarizes the necessary procedures for salvaging plants from the public lands in the Las Vegas Field Office. This document was developed to guide project managers of BLM-authorized actions in the evaluation, removal, transportation, and care of desert plants that are impacted the project. Types of lands actions that may require salvage of desert cacti and yucca include, but are not limited to, rights-of-way, recreation and public purpose lands, detention basins, leases, and gravel pits. Because salvaging desert plants is time-consuming and expensive, the following guidelines will be used for determining which plants require salvaging:

- All barrel cactus must be salvaged;
- All cottontop cactus must be salvaged;
- All hedgehog cactus must be salvaged;
- All yucca over one foot tall, including Joshua trees, Mojave yucca, banana yucca, and soaptree yucca must be salvaged;
- All other cacti over one foot tall or over one foot wide (including prickly pear, pencil cactus, etc.) must be salvaged;
- Cacti and yucca less than one foot tall and cholla cacti (staghorn, silver, etc.) do not need to be salvaged.

Authority: Salvaging desert vegetation in Nevada is regulated by the State of Nevada Division of Forestry (NDF) under the status NRS 527.050 – 527.110. The BLM coordinates all plant salvages on public lands with the State. See Attachment 1 for a summary of these statutes. The BLM is authorized to salvage vegetation on public lands under 43 CFR 5400 and BLM Manual 5000-1 (10/28/91)

Evaluation: Prior to any disturbance, the project site must be surveyed for yucca and cacti by a qualified biologist paid for by the project proponent. The surveyor must provide a list of numbers of yucca and cacti by species. If hundreds of plants are known to occur, an estimate may be provided based on counting plants within a specific area (e.g., 0.1^{o} mile) and then calculating the entire are to be disturbed. A copy of the evaluation needs to be forwarded to the BLM forestry staff.

Salvage: Prior to any disturbance, the cacti and yucca which will be impacted will be appropriately salvaged. Cooler months are best for salvage, but removal can occur at any time of the year. Yucca and cacti are very shallow-rooted and thus easy to remove. Cacti do not require being transplanted immediately. One or two weeks drying time will

decrease the chance for root infection, especially if the roots become damaged during digging. Yuccas do require immediate transplanting. In particular, Joshua trees are sensitive to being moved. Barrels and Joshua tree require that the north side of the plant be identified and marked, using flagging or other marking. These two species need to be planted in the same orientation as they were originally growing in order to survive. Other succulents don't seem to care about orientation. A front-end loader or other heavy equipment is necessary for the larger plants. Clonal (clumped) yucca can be salvaged as separate plants with great success (each has its own root system).

Transportation and Care: **Before transporting the plants, the contractor must get a shipping permit from BLM.** The BLM has a stockpiling facility for salvaged material at the Desert Tortoise Conservation Center (DTCC). The plant material taken there is for restoration projects elsewhere in the district. Cacti and yucca that will be immediately taken to the DTCC can be transported bare-root without potting them beforehand. They should be loaded upright onto a flatbed trailer, transported to the DTCC, placed in one of the trenches located at the facility, and backfilled. The BLM will water and maintain the plants until they can be used for restoration. The DTCC is not open to the general public; the hours are 7:00am to 1:00pm, Monday thru Friday. Twenty-four hours notice must be given to the BLM before the plants are transported in order for BLM to coordinate with the staff at the DTCC. Directions to the DTCC are provided in Attachment 2.

Compliance Checks: The BLM will evaluate whether proper salvage has been done for a project. Cost recovery charges for lost or destroyed cacti and yucca will be applied at fair market value. In addition, staff time and vehicle costs for non-compliance will be added.

Questions: Any questions or problems will be resolved through the Forestry staff at BLM. Please contact Gayle Marrs-Smith at (702) 647-5156.

APPENDIX F
DRAFT BIOLOGICAL ASSESSMENT

PRELIMINARY DRAFT
BIOLOGICAL ASSESSMENT

The following Preliminary Draft Biological Assessment has been prepared from results of field investigations that were carried out for the Ivanpah Energy Center Project. The assessment has not been reviewed by the Bureau of Land Management, U.S. Fish and Wildlife Service, or other federal or state agencies. Additional field investigations and analyses are required to address potential impacts to biological resources related to construction of the Primm Plant Site Alternative.

1. INTRODUCTION

The purpose of this Biological Assessment (BA) is to determine the effects of the Ivanpah Energy Center on species that are listed as threatened, endangered, or those species that are proposed for listing as either threatened or endangered by the U.S. Department of Fish and Wildlife Service (USFWS). This BA is prepared in accordance with legal requirements set forth under Section 7 of the Endangered Species Act of 1973 (19 U.S.C. 1536[c]) (USFWS). The BA provides a process through which federally-listed species receive full consideration in the decision making process. This BA was prepared in support of a Draft Environmental Impact Statement for the Ivanpah Energy Center that was prepared for the U.S. Department of the Interior, Bureau of Land Management, Las Vegas Field Office.

2. METHODOLOGY

2.1 LITERATURE SEARCH

Special status wildlife species that could potentially occur in the project area were determined from a Nevada Natural Heritage Program data base search dated April 15, 2002 (an updated listing has been requested by Parsons Corporation), a review of a list of wildlife Species of Concern compiled by the United States Fish and Wildlife Service (USFWS) for Clark County, and a review of environmental documents prepared for other projects in the vicinity of the project area.

One federally listed threatened species, the desert tortoise (*Gopherus agassizii*), is known to occur within an area that could be affected by construction or operation of the Ivanpah Energy Center, or its project components.

2.2 FIELD SURVEYS

Field surveys were conducted from May 1 through 7 and May 14 through 23, 2002. The USFWS protocol field surveys for desert tortoises were conducted over 100% of the project area that could be affected by construction of the Ivanpah Energy Center at the Goodsprings Plant Site. The survey used 10-meter-wide parallel transects. The survey areas included the proposed Goodsprings Plant Site, transmission line rights-of-way that would be affected by construction of the Ivanpah Energy Center at the Goodsprings Plant Site, access roads to the plant site, and the telecommunications line corridor. A 100 to 400 foot wide corridor was surveyed along the transmission line corridors. A 50-foot wide corridor was surveyed along access road alignments. A total of 1,127 acres were surveyed.

A triangle sampling method was recommended by the USFWS (with concurrence from the BLM) as a means of determining relative densities of desert tortoise numbers within the project area. Twenty-eight "tortoise triangles," which were primarily established along the transmission rights-of-way, were walked to assess the density of desert tortoises in the project area (see Berry and Nicholson, 1984). The triangles were 1.5 miles long (0.5 mile-long legs) and 9 meters wide and encompassed approximately six acres each for a total of 168 acres. Additional surveys are

needed to evaluate desert tortoise numbers that could be impacted by development of the Primm Plant Site Alternative.

3. CURRENT MANAGEMENT DIRECTION

3.1 THREATENED, ENDANGERED, AND PROPOSED SPECIES

As defined by the Endangered Species Act of 1973 (ESA), a threatened species is any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. An endangered species is any species that is in danger of extinction throughout all or a significant portion of its range. Proposed species are those that are proposed in the Federal Register by the USFWS to be listed as either threatened or endangered. Species of Concern (SOC) are taxa for which existing information indicated may warrant listing, but for which substantial biological information to support a proposed rule is lacking.

Section 7 of the ESA directs federal departments and agencies to ensure that actions authorized, funded, or carried out by them are not likely to jeopardize the continued existence of any threatened or endangered species or result in the destruction or adverse modification of their critical habitat.

4. DESCRIPTION OF PROJECT

4.1 LOCATION

The project area is south and west of Las Vegas, Nevada, in the Ivanpah Valley, near the communities of Goodsprings and Jean and in the Eldorado Valley, near the City of Boulder City. Specifically, the project is located on lands administered by the Las Vegas Field Office of the U.S. Bureau of Land Management (BLM).

4.2 PROJECT DESCRIPTION

The proposed Ivanpah Power Generation Project includes a power generation plant, temporary laydown area, a wastewater treatment plant, access roads, and transmission line, water supply pipeline and telecommunications line.

Construction and Operation of the Ivanpah Energy Center at Goodsprings

The Goodsprings plant site was proposed by the project proponent and carried forward for further evaluation as part of the EIS. An alternative plant site that would co-locate the Ivanpah Energy Center with the Reliant Bighorn Facility, in Primm, Nevada also was considered in detail.

The proposed 30-acre Goodsprings plant site (and 10-acre temporary laydown area) was selected as a potential alternative due to the availability of natural gas, access, water, and transmission line interconnection sites. The 10-acre laydown area and areas that would be temporarily disturbed during construction would be revegetated after construction and the areas would be

restored in accordance with BLM's approved restoration plan. Temporarily disturbed areas would be returned to the BLM, following restoration.

The proposed plant site also is partially screened from most views by intervening landforms and is sufficiently remote to avoid potential land use conflicts and noise impacts. Construction would result in negligible to moderate noise and PM_{10} impacts to residents in Goodsprings.

A telecommunications line would be installed underground and adjacent to the existing Kern River Gas Transmission Compressor Station Road to the northern access road to the Ivanpah Energy Center. Approximately 0.8 acres adjacent to the Compressor Station Road would be temporarily disturbed to bury the 1,400 linear-foot lines. An additional 5,800-foot-long segment of the line would be buried within the shoulder of the north access road. Although a pipeline would be constructed from the Kern River Gas Transmission pipeline to the plant site, it would be on plant site property and would not require additional land disturbance.

Construction and Use of the North and South Access Roads

The north access road would require minimal improvements and would provide permanent access to the plant site. Improvements to the north access road would include widening and paving, which would permanently remove 2.7 acres of desert tortoise habitat. Additionally, a south access would be improved along an existing unidentified trail that would connect two county roads. Improvements to the trail would temporarily remove 2.6 acres of potential desert tortoise habitat from use. Although the trail would be restored, following its use during construction of the power plant, it is likely that it would take several years for restoration to be considered to be successful. The south access road was considered to be necessary for the project because it would provide an opportunity to reduce the need to transport heavy loads along State Route (SR) 161, thus reducing potential impacts to traffic along the highway.

Construction and Operation of the Water Treatment Plant

A water treatment plant would be located on one of two 0.7-acre parcels in the vicinity of the Southern Nevada Correctional Center, Jean, Nevada. The sites are located in an industrial setting and potential impacts associated with either construction or operation of the facility are expected to be negligible and largely related to increased traffic along local roads, construction-related noise, and increased PM_{10} levels. The facility would be painted to blend with the surroundings and lighting would be minimized and shielded to reduce potential visual impacts.

Construction and Operation of the Water Supply Pipeline

A water supply pipeline would be installed parallel to the existing Union Pacific Railroad right-of-way and within the transmission line corridor of the proposed project. Much of the land adjacent to the railroad right-of-way has been previously disturbed by construction and railroad operations; land within the transmission line corridor would be temporarily disturbed during transmission line construction. Installation of the 57,560-foot-long pipeline would result in temporary disturbance to approximately 53 acres. Construction would result in temporary impacts within areas that have been disturbed by previous activities or those that would be

disturbed by transmission line construction. Therefore, overall impacts related to ground disturbance would be minimized to the extent practicable.

Three plant site access options were evaluated for the proposed water supply pipeline. Option 1 would cross the mountain west of the plant site, parallel to five interconnection circuits. Options 2 and 3 would extend around the southern toe of the mountain. Plant Site Access Option 2 was selected because it would be constructed within ROW for transmission line interconnections. The area is relatively level, which should result in low soil erosion potential and should facilitate re-establishing vegetation in accordance with BLM's Restoration Plan. Selection of Option 1 would introduce the potential for moderate soil erosion along steep mountain slopes. Option 3 would be longer than that of Option 2 and would cross a portion of the Desert Tortoise Translocation Area.

Construction and Operation of the Transmission Lines

A transmission line route that would be adjacent to, or parallel, the existing VEA Pahrump to Mead Transmission Line was selected for the project. The new line (designated as Ivanpah-Mead #2) would be within BLM-designated Utility Corridors throughout its entire length and it would parallel the existing VEA Pahrump to Mead Transmission Line, which would facilitate construction and periodic inspection and maintenance of both lines. The route also was considered to be preferable from a constructability aspect because only one segment (Segment 110) would require a large number of line crossings. All crossings could be accomplished by using a series of H-frame structures that would extend throughout the segment.

Four plant site access options were evaluated for the proposed transmission line interconnections. Option 1 was originally presented by Valley Electric Association as a preferred route in which all five circuits would cross over the mountain west of the plant. Options 2 and 3 were identified during the EIS process as environmentally preferable alternatives in which all five circuits would extend around the southern toe of the mountain. Option 4 was later identified by Valley Electric Association in which one circuit would extend across the mountain and the remaining four circuits would extend around the southern toe of the mountain. The five circuits are designated as Ivanpah-Table Mountain #1 and #2, Ivanpah-Mead #1 and #2, and Ivanpah-Pahrump.

Plant site access Option 2 was selected as environmentally preferred because it would concentrate all five interconnection transmission lines into one 300-foot-wide corridor that could be constructed on three parallel sets of structures consisting of two double-circuit structures and one single-circuit structure. The concept would eliminate the introduction of a variety of impacts to an area that otherwise could be avoided. Plant site access Option 2 would avoid extremes in topography that are present in Options 1 and 4, and therefore, avoid the potential for impacts related to increased soil erosion that are concomitant with construction on steep slopes. Implementation of Option 2 also would avoid potential difficulties that are often associated with revegetation and soil stabilization on steep slopes.

Adverse visual impacts associated with construction across the mountain (Options 1 or 4) would be avoided by construction of all five circuits around or across the mountain toe. The single-circuit that would extend over the mountain on single-circuit structures, as described in Option 4, would be constructed parallel to other structures around the toe. Potential reliability benefits associated with

routing one circuit over the mountain (rather than routing it around the toe of the mountain) are offset by increased vulnerability to lightning strikes, high winds, and structure foundation stability.

Approximately nine acres would be permanently taken for construction of new access roads and spur roads. An additional 228 acres would be temporarily disturbed during the installation of approximately 380 single-pole structures, pulling and tensioning of conductor, and temporary spur roads.

Construction and Operation of the Ivanpah Energy Center at Primm

If located in Primm, the Ivanpah Energy Center would occupy approximately 30 acres of private land that is currently leased by Reliant Energy for the Bighorn Power Plant. An additional 10 acres of private land that is leased by Reliant Energy would be used as a temporary laydown area. The Primm Plant Site has been cleared of desert tortoise and is fenced with desert tortoise fencing. Access to the Primm Plant Site would be along an existing road that has been constructed by Reliant Energy for the Bighorn Facility. Telecommunications to the Primm Plant site would be along an existing Sprint Communications corridor. If constructed at the Primm Plant Site, Ivanpah Energy Center would require construction of a 3.2-mile-long natural gas supply pipeline from the Kern River Gas Transmission (KRGT) pipeline to the plant site. The pipeline would parallel a similar pipeline that is being constructed by KRGT to supply natural gas to the Reliant Bighorn Facility. A 0.5-acre metering station would be constructed at the KRGT; installation of the natural gas pipeline would temporarily disturb 19.4 acres of desert habitat.

Construction and Use of the Access Roads

Construction of the Ivanpah Energy Center at Primm would not require construction of new access roads.

Construction and Operation of the Water Treatment Plant

Construction of the Ivanpah Energy Center would require construction of a water treatment plant as described for the Goodsprings Plant Site. Potential impacts and mitigation measures would be the same for both alternatives.

Construction and Operation of the Water Supply Pipeline

A water supply pipeline would be installed parallel to the existing Union Pacific Railroad right-of-way from the water treatment plant to the Primm Plant Site or parallel to the UPRR ROW and within a transmission line corridor that would be used by the facility. As described for the Goodsprings Alternative, much of the land adjacent to the railroad right-of-way has been previously disturbed by construction and railroad operations; land within the transmission line corridor would be temporarily disturbed during transmission line construction. Construction along the UPRR ROW would total 57,800 linear feet; construction that would parallel the UPRR and lie within the transmission line corridor would total 72,000 linear feet. Disturbance due to construction would total 53 or 66 acres.

Construction and Operation of the Transmission Lines

Transmission line requirements to support the Primm Plant Site would be much the same as those needed for the Proposed Goodsprings Plant Site. However, an additional double-circuit transmission line would be needed north of the plant site to the existing VEA Pahrump-Mead Transmission Line Corridor, a distance of approximately eight miles. One circuit would be constructed to the proposed Table Mountain Substation, the other circuit would connect to the Mead Substation. Alternative plant access options as identified for the Goodsprings Plant Site would not be needed.

Approximately 8.3 acres would be permanently taken for construction of new access roads and spur roads. An additional 245 acres would be temporarily disturbed during the installation of approximately 410 single-pole structures, pulling and tensioning of conductor, and temporary spur roads.

5. EXISTING ENVIRONMENT

5.1 EXISTING ENVIRONMENT

The project area is located in the Basin and Range physiographic province in the eastern Mojave Desert. The province is characterized by generally trending north to south mountain ranges, separated by wide alluvial valleys with internal drainage. Sparse vegetation and little soil on the slopes of the ranges helps to form shallow lakes or playas in some valleys, including Ivanpah Valley (Longwell et al., 1965).

The mountains are complexly folded and faulted, consisting mainly of Cambrian through Triassic limestones and dolomites. Non-carbonate rocks in the ranges include Precambrian to Tertiary volcanic flows, tuff, gneiss, schist, granite and sandstone (Bagley, 1979; Tucker, 1983). Alluvial aprons adjoin the mountain ranges and merge with fill near the center of the valleys. The older alluvium, Cretaceous to Pleistocene in age, is composed of semi-consolidated and poorly sorted clays, silts, sand and gravels originating in the nearby mountains. Younger alluvium of Pleistocene and Holocene age has been deposited by major streams and washes that dissect the region; and are composed of unconsolidated and moderately well sorted sands, silts, and clays (Bagley, 1979; Tucker, 1983).

Within the project area, the topography includes the relatively steep canyon at Crystal Pass, steep mountain ranges, rolling hills, broad alluvial valleys, and a dry lakebed. The elevation ranges from approximately 1720 feet in the vicinity of Eldorado Valley to 3800 feet in McCullough Range. Rock outcrops are located on ridges, mountain ranges, and in Crystal Pass.

The climate in the project area is typical of the arid Great Basin physiographic region and the Mojave Desert. It is predominantly dry and warm, with large daily temperature fluctuations and little rainfall. Annual average precipitation ranges between 5 and 10 inches and is controlled by the rain shadow effect of the Sierra Nevada Mountains. Summer temperatures can range well above 100 degrees Fahrenheit during the day and remain in the 70 to 80 degrees Fahrenheit range at night.

Winter temperatures range between 40 and 50 degrees Fahrenheit. On average there are 230 frost-free days.

The project area is relatively undeveloped, although the proposed transmission line is largely located within a major power line corridor. Current land uses include the Jean Lake grazing allotment east of Interstate 15, organized and casual off-highway vehicle (OHV) use, and non-motorized recreation such as hiking, biking, and horse riding. Old mine adits are present in the westernmost end of the project area (segment 10). Numerous roads bisect the project area, including roads parallel to the power line corridor. Currently, the Bighorn transmission line project is being installed in the westernmost portion of the project area.

The following five plant communities were identified in the project area and are discussed below: creosote bush, mixed scrub-mixed succulent, blackbrush, desert saltbush, and stabilized dune. All vegetation communities in the project area are within the Mojave desert scrub biotic community, as described by Brown (1994).

1. Creosote Bush – White Bursage (*Larrea tridentata – Ambrosia dumosa*) Community: This vegetation community is found at lower elevations, most commonly from the bottom to the edges of broad alluvial valleys and on low hills. It is dominated by creosote bush and white bursage. Other common plants in this community include big galleta grass (*Hilaria rigida*), white burrobrush (*Hymenoclea salsola*), diamond cholla (*Opuntia ramosissima*), silver cholla (*Opuntia echinocarpa*), ratany (*Krameria erecta*), Russian thistle (*Salsola tragus*), plantain (*Plantago* sp.), desert globemallow (*Sphaeralcea ambigua*), and Mediterranean grass (*Schismus barbatus*). Other, less common, species in this vegetation community include Mohave yucca (*Yucca schidigera*), beavertail prickly pear (*Opuntia basilaris*), joint fir (*Ephedra fasciculata*), wire lettuce (*Stephanomeria* sp.), desert marigold (*Baileya multiradiata*), skeletonweed (*Eriogonum deflexum*), Booth's evening primrose (*Camissonia boothii*), barrel cacti (*Ferocactus cylindraceus* var. *lecontei*), snakeweed (*Gutierrezia sarothrae*), fluffgrass (*Dasyochloa pulchella*), and Indian ricegrass (*Achnatherum hymenoides*). Near hills in the east end of Eldorado Valley, brittlebush (*Encelia farinosa*) and buckhorn cholla (*Opuntia acanthocarpa*) also occur. In some areas, diamond cholla, buckhorn cholla, silver cholla, and Mojave yucca are much more common. Other plants occur along medium to large washes in this community and include catclaw acacia (*Acacia greggii*), Cooper's wolfberry (*Lycium cooperi*), Anderson's wolfberry (*Lycium andersonii*), woolly brickellia (*Brickellia incana*), desert willow (*Chilopsis linearis*), dock (*Rumex hymenosepalus*), squaw waterweed (*Baccharis sergiloides*), four-wing saltbush (*Atriplex canescens*), wooly-fruited bursage (*Ambrosia eriocentra*), and Palmer's penstemon (*Penstemon palmeri*). At lower elevations with gravely soils in the bottom of Ivanpah Valley and Eldorado Valley, this community is dominated by creosote bush, white bursage, white burrobrush, and Mediterranean grass. In sandier areas within this community, big galleta grass is co-dominant with creosote bush and white or even more dominant than creosote bush. Mediterranean grass is also common in those sandier areas.

2. Mixed Scrub-Mixed Succulent Community:
 Although creosote bush, white bursage, and some of the other species found in the creosote bush – white bursage community occur in this vegetation community, they are

far less common and the vegetation of mixed scrub-mixed succulent communities is more diverse, with several species not found in creosote bush – white bursage communities. In addition, the mixed scrub-mixed succulent communities are found at higher elevations and on higher hills, even as high as McCullough Pass. Common species include: Mojave yucca, ratany, joint fir (*Ephedra fasciculatum* and *Ephedra nevadensis*), flat-top buckwheat (*Eriogonum fasciculatum*), paper bag bush (*Salazaria mexicana*), buckhorn cholla, diamond cholla, silver cholla, spiny menodora (*Menodora spinescens*), fluffgrass, fiddleneck (*Amsinckia intermedia*), peppergrass (*Lepidium* sp.), goldeneye (*Viguiera deltoidea*), big galleta grass, white burrobrush, blackbrush (*Coleogyne ramosissima*), Joshua tree (*Yucca brevifolia*), desert trumpet (*Eriogonum inflatum*), and barrel cacti. Other less common species documented in these communities include catclaw acacia, snakeweed, narrowleaf goldenbush (*Ericameria linearifolia*), turpentine bush (*Ericameria laricifolia*), cottontop cactus (*Echinocactus polycephalus*), matted cholla (*Opuntia parishii*), Utah butterflybush (*Buddleja utahensis*), California brickellia (*Brickellia californica*), beavertail prickly pear, wire lettuce (*Stephanomeria* sp.), evening primrose (*Oenothera* sp.), desert globemallow, skeletonweed (*Eriogonum deflexum*), hedgehog cactus (*Echinocereus engelmannii*), coldenia (*Coldenia* sp.), shadscale saltbush (*Atriplex confertifolia*), desert marigold, Anderson's wolfberry, pincushion cactus (*Mammillaria tetrancistra*), mortonia (*Mortonia scabrella* var. *utahensis*), prince's plume (*Stanleya pinnata*), chia (*Salvia columbariae*), desert tobacco (*Nicotiana obtusifolia* var. *obtusifolia*), winterfat (*Krascheninnikovia lanata*), Mojave prickly pear (*Opuntia erinacea*), sandwort (*Arenaria* sp.), Heerman's buckwheat (*Eriogonum heermannii* var. *humilius*), Wright buckwheat (*Eriogonum wrightii*), cliffrose (*Purshia stansburiana*), desert stingbush (*Eucnide urens*), Palmer's penstemon, and purple sage (*Salvia dorrii*). Along washes in this community some other species occur including desert willow, Cooper's wolfberry, woolly brickellia, Apache plume (*Fallugia paradoxa*), and two-tone beardtongue (*Penstemon bicolor* ssp. *bicolor* and *P. bicolor* ssp. *roseus*).

3. Blackbrush (*Coleogyne ramosissima*) Community:
 Although these vegetation communities are common and widespread in the upper elevational limits of the Mojave desert scrub biotic community, the only area within the limits of this project that has a blackbrush dominated community is located in Segment 10 west of Crystal Pass. Other species that can be found in this blackbrush community include Mojave yucca, Joshua tree yucca, creosote bush, joint fir, Prince's plume, snakeweed, Indian ricegrass, Anderson's wolfberry, and spiny menodora. Russian thistle and desert marigold occur in disturbed areas within this community, such as along roads and in other areas where vegetation was previously cleared.

4. Desert Saltbush (*Atriplex polycarpa*) – Creosote Bush Community:
 Within the project area, this vegetation community occurs on the alkaline soils north and south of Dry Lake in Eldorado Valley. This community occurs in Segments 110 and 120. It begins approximately at approximately one mile west of Dry Lake and extends eastward along the northern and southern boundaries of Dry Lake to Highway 95. Within this community, desert saltbush and creosote bush are co-dominant. Other species that occur within this community include Mediterranean grass and fiddleneck, as well as some white bursage and rigid spiny herb (*Chorizanthe rigida*).

5. Stabilized Dune Community:
 This vegetation community occurs throughout Segment 140, the Mead Substation area, and along Segment 130. The dominant plants of this community are creosote bush, dune primrose (*Oenothera deltoides*), desert dicoria (*Dicoria canescens*), and Russian thistle.

5.2 FEDERAL THREATENED AND ENDANGERED SPECIES

The desert tortoise is the only federally listed threatened or endangered species that is known to occur in the project area.

Due to significant population decline and habitat loss, the Mojave desert tortoise (*Gopherus agassizii*) population was listed as federally threatened by the USFWS on April 2, 1990. The state of Nevada categorizes the desert tortoise as a protected species pursuant to Nevada Revised Statute (NRS) 501.110 and Nevada Administrative Code (NAC) 503.080 and 503.090. Critical habitat for the desert tortoise was designated on March 10, 1994 (59 Federal Register 5820). No designated critical habitat for the desert tortoise occurs in the project area. Protection and conservation of the desert tortoise is administered under the Programmatic Biological Opinion for Multiple Use Activities (File No. 1-5-97-F-251) and the Clark County Multi-Species Habitat Conservation Plan. The Ivanpah Energy Center project is not included under the Clark County Multi-Species Habitat Conservation Plan because an Environmental Impact Statement was required for BLM permitting.

The desert tortoise occurs in desert creosote bush scrub communities characterized by perennial shrubs such as creosote bush and bursage, Joshua tree, cacti, and grass, along with a variety of other perennial and annual plants. Preferred habitat includes scattered shrubs with a herbaceous understory to provide food and water. The desert tortoise typically occupies habitat below 5,000 feet in elevation and occurs most often on flats and bajadas characterized by sandy to sandy-gravely soils, but may also occur on slopes and in rocky soils.

Results of field surveys that were conducted in the project area were calculated based on the linear regression model developed by Berry and Nicholson (1984) (Table 1). The model was amended by the Las Vegas District of BLM because the original model over-estimates tortoise population densities in Nevada. The regression equation used to calculate the number of tortoises per square mile is 640 acres = 4[(CS-1.68)/0.35] where CS is corrected sign (Berry and Nicholson 1984). Analysis of only total sign results in an overestimation of tortoise population densities. Tortoise sign must be adjusted to account for sign that is clearly attributable to the same tortoise.

A total of 76 tortoise signs (e.g., burrows, tracks, scat, skeletal parts, or carcasses) were recorded within the 28 tortoise triangle transects (approximately 168-acres). Corrected sign for the project area was 65. The survey results indicate that desert tortoise densities in the project area range from very low (0 to 10 individuals per square mile) to very high (greater than 140 individuals per square mile) (Table 3).

The portion of the project area west of Interstate 15 passes through the Desert Tortoise Translocation Area and is within Category B (moderate) density habitat. More than 3,900 desert tortoises (hatchlings, yearlings, and adults) have been released to the LSTS since 1997 (Southern Nevada Environmental Inc., personal communication, 1999-2001 Biennium Report). The majority of adult tortoises released were males. Of the eight live tortoises that were identified during the May

2002 field investigations in the Translocation Area, seven were male. Only adult tortoises were observed. As indicated in Table 2, the highest relative tortoise density was found in Segment 30, which crosses the Translocation Area.

Tortoise habitat located east of Interstate 15 (I-15) is of lower quality than that located west of the highway, primarily due to the finer grained, collapsible soils in the area. Only one live tortoise was observed east of I-15. The tortoise was observed in the westernmost end of Segment 60, approximately 4.5 miles due east of I-15.

Table 1. Estimated tortoise density ranges*

Number of Corrected Sign Per Triangle Transect	Corrected Sign per Acre	Predicted Range Density for Nevada (#/sq. mile)	Relative Density
0	0	0-10	Very Low
1-3	0.1-0.5	10-45	Low
4-7	0.6-1.1	45-90	Moderate
8-11	1.3-1.8	90-140	High
12+	1.9+	140+	Very High

* Based on Berry and Nicholson (1984) and from information developed by the Las Vegas District of BLM, which was based on work by Karl (1980).

Table 2. Survey results and estimated tortoise density ranges for 100% coverage surveys.

Site	Area Surveyed (acres)	Total Sign*	Corrected Sign	Corrected Sign per acre	Tortoise Density Estimates (#/sq. mile)	Relative Tortoise Density
Seg 10	98	19	15	0.15	10-45	Low
Seg 20	161	83	63	0.39	10-45	Low
Seg 30	41	76	56	1.37	90-140	High
Seg 50	57	25	22	0.39	10-45	Low
Seg 60	147	34	31	0.21	10-45	Low
Seg 90	85	10	10	0.12	10-45	Low
Seg 110	149	7	7	0.05	0-10	Very Low
Seg 130	153	7	5	0.03	0-10	Very Low
Seg 140	24	3	3	0.13	10-45	Low

- Sign includes active burrows, burrows in good, fair, and poor condition, rock and caliche dens; scat; live tortoises, tortoise carcasses, including bones, scutes, plastrons, and shells.

Table 3. Survey results and estimated tortoise density ranges for triangle transect surveys conducted along the transmission line corridor.

Triangle Transect	Area Surveyed (acres)	Total Sign*	Corrected Sign	Density Estimates	Relative Density
1	6	1	1	10-45	Low
2	6	6	6	45-90	Moderate
3	6	7	7	45-90	Moderate
4	6	15	12	140+	Very High
5	6	15	10	90-140	High
6	6	0	0	0-10	Very Low
7	6	1	1	10-45	Low
8	6	3	3	10-45	Low
9	6	3	3	10-45	Low
10	6	5	3	10-45	Low
11	6	0	0	0-10	Very Low
12	6	1	1	10-45	Low
13	6	1	1	10-45	Low
14	6	6	6	45-90	Moderate
15	6	0	0	0-10	Very Low
16	6	1	1	10-45	Low
17	6	0	0	0-10	Very Low
18	6	1	1	10-45	Low
19	6	0	0	0-10	Very Low
20	6	2	2	10-45	Low
21	6	1	1	10-45	Low
22	6	0	0	0-10	Very Low
23	6	0	0	0-10	Very Low
24	6	1	1	10-45	Low
25	6	4	3	10-45	Low
26	6	0	0	0-10	Very Low
27	6	1	1	10-45	Low
28	6	1	1	10-45	Low

- Sign includes active burrows, burrows in good, fair, and poor condition, rock and caliche dens; scat; live tortoises, tortoise carcasses, including bones, scutes, plastrons, and shells.

6. EFFECTS OF THE PROJECT

6.1 DIRECT EFFECTS

Direct effects to the desert tortoise could occur as a result of the construction activities associated with either plant site alternative. Habitat alteration could negatively affect the amount of forage and cover available to desert tortoises during construction and following project completion. Direct loss of individual tortoises could also occur during construction activities. The use of construction vehicles could result in the introduction of noxious weeds and other undesirable plants that could ultimately result in the displacement of native vegetation that supports the desert tortoise. Other potential impacts include fragmentation of habitat.

Construction of the Ivanpah Energy Center Goodsprings Plant Site would result in temporary and permanent loss of approximately 337 acres of desert tortoise habitat (including an estimated 18 acres that would be used as a laydown area for transmission line construction). A maximum of approximately 41.6 acres of desert tortoise habitat would be permanently (during the life of the project) lost. An additional 295 acres would be temporarily disturbed during construction, but restored in accordance with BLM stipulations. Areas that would be temporarily disturbed would be returned to BLM, following restoration activities. Maximum acres of temporary and permanent disturbance are shown in Table 4.

Construction of the Ivanpah Energy Center Primm Plant Site would result in temporary and permanent loss of approximately 327 acres of desert tortoise habitat (including an estimated 18 acres that would be used as a laydown area for transmission line construction). A maximum of approximately 8.8 acres of desert tortoise habitat would be permanently (during the life of the project) lost. An additional 318 acres would be temporarily disturbed during construction, but restored in accordance with BLM stipulations. Maximum acres of temporary and permanent disturbance are shown in Table 5.

Based on relative tortoise density estimates, reported on Table 2, potential impacts to desert tortoise populations are expected to be low to very low along all segments of the proposed transmission line alignment, except Segment 30. Densities along Segment 30 were estimated to be high. Actual numbers of desert tortoise that could be affected by construction and operation of the Ivanpah Energy Center and transmission lines are calculated in Table 6.

Table 4. Areas of Disturbance by Project Component – Proposed Goodsprings Plant Site

Goodsprings Site – includes Option 2 across toe of mountain and line to Table Mountain						
	BLM ROW	Land Disturbance Within BLM ROW		Land Disturbance Outside of BLM ROW		Private and State Lands
		Permanent	Temporary	Permanent	Temporary	
Ivanpah Energy Center						
Plant Site (N-75493)	30.0	30.0				
Temporary Laydown Area (N-75493)	10.0		10.0			
Natural Gas Supply Pipeline (N-75471)	Negligible	Negligible	Negligible			
Telecommunications Line (N-75895) [1]	1.7		0.8			
Access Roads (N-75493)						
Northern Access Road (County Road 53Y) [2]				2.7		
Southern Access Road [3]					2.6	
Water Treatment Plant (no BLM permit required)	State of Nevada Land					0.7
Water Supply Pipeline (N-75475)						
Parallel to UPRR ROW and Co-located with Transmission Corridor (~57,560 linear ft)	13.2 [4]		52.9 [5]			
Ivanpah-Mead #2, Ivanpah-Table Mountain #1 & #2, and Pahrump-Mead Interconnections (N-75471 and N-75472)						
Approx. Line Length (~251,000 linear ft)						
Pole Sites (380)		<0.1				
Pole Work Areas (100x200 each)			174.5			
P&T Sites			2.8 [6]		27.6 [7]	
New Access Roads		4.8 [8]				
Spur Roads		4.1 [9]			5.2 [10]	
OPGW	69.2 [11]					
Temp. Laydown Areas (total)					18.0	
Total Proposed Goodsprings Site		**38.9**	**241.0**	**2.7**	**53.4**	**0.7**

[1] Total length - 7,200 linear ft -- 10 ft wide permanent ROW, 25 ft temporary disturbance along 1,400 linear feet.
[2] 7,500 linear ft – increase from 10 ft wide to 26 ft wide, pave 20 ft. width.
[3] 14,000 linear ft – increase from 10 ft side to 18 ft wide.
[4] 10 ft wide permanent ROW, partially within project transmission line corridors,
[5] 40 ft wide temporary disturbance
[6] 4 sites within ROW, (100x300 each)
[7] 40 sites outside of ROW, (100x300 each)
[8] 5,000 linear feet x 18 ft, from Table Mountain Sub. to Mead Sub. (2.1 ac), plus 6,500 linear feet x 18 ft, across toe of mountain (2.7 ac)
[9] 10,000 linear feet (spur roads) x 18 ft (4.1 ac)
[10] 12,500 linear feet (spur roads) x 18 ft from Table Mountain Sub. to Mead Sub. (5.2 ac)
[11] OPGW = 12 ft wide throughout length of ROW
Note: Linear feet and acreages among transmission line alternatives and plant access options differ slightly.

Table 5. Areas of Disturbance by Project Component – Primm Plant Site Alternative

Primm Site – Includes to Table Mountain Circuit						
	BLM ROW	Land Disturbance Within BLM ROW		Land Disturbance Outside of BLM ROW		Private and State Lands
		Permanent	Temporary	Permanent	Temporary	
Ivanpah Energy Center						
Plant Site (N-75493)	Private Industrial Land					30.0
Temporary Laydown Area (N-75493)	Private Industrial Land					10.0
Natural Gas Supply Pipeline (N-75471)	4.4 (1)	0.5 (2)	19.4 (3)			
Telecommunications Line (N-75895)	None required					
Access Roads (N-75493)	None required					
Water Treatment Plant (no BLM permit required)	State of Nevada Land					0.7
Water Supply Pipeline (N-75475)						
Parallel to UPRR ROW (~57,800 linear ft)	13.3 (4)		53.1 (5)			
Ivanpah-Mead and Ivanpah-Table Mountain Circuits (N-75471 and N-75472)						
Approx. Line Length (~285,900 linear ft)						
Pole Sites (410)		<0.1				
Pole Work Areas (100x200 each)			188.3			
P&T Sites			3.4(6)		30.3(7)	
New Access Roads		4.2(8)				
Spur Roads		4.1(9)			5.2(10)	
OPGW	78.8(11)					
Temp. Laydown Areas (total)					18.0	
Total Primm Site Alternative		**8.8**	**264.2**	**- 0 -**	**53.5**	**40.7**

(1) 0.5 ac metering station plus 3.9 ac permanent pipeline ROW (10 ft width)
(2) 100 x 200 ft metering station
(3) 16,900 linear ft pipeline, 50 ft wide temporary disturbance
(4) 10 ft wide permanent ROW
(5) 40 ft wide temporary disturbance (an alternative using transmission line corridors would result in 66 acres of disturbance).

[6] 5 sites within ROW, (100x300 each)
[7] 44 sites outside of ROW, (100x300 each)
[8] 5,000 linear feet x 18 ft, from Table Mountain Sub. to Mead Sub.(2.1 ac), plus 5,000 linear feet x 18 ft from IEC to the north (2.1 ac)
[9] 10,000 linear ft (spur roads) x 18 ft (4.1 ac)
[10] 12,500 linear feet x 18 ft from Table Mountain Sub. to Mead Sub. (5.2 ac)
[11] OPGW = 12 ft wide throughout length of ROW
Note: Linear feet and acreages among transmission line and water supply pipeline alternatives options differ slightly.

Table 6. Estimated Numbers of Desert Tortoise Affected by Facilities Construction Goodsprings Plant Site Alternative.

	Total Acres Disturbed[1]	Representative Segment/Density	Tortoise Density Estimates (#/sq.mile)	Number of Tortoise Potentially Affected
Ivanpah Energy Center[1]	40.8	30/High	90-140	5.7 – 8.9
Access Roads	5.3	0/High	90-140	0.4 – 0.6
Water Treatment Plant[2]	0.7	60/Low	10-45	negligible
Water Supply Pipeline	52.9	to be determined	to be determined	to be determined
Ivanpah – Mead #2[3]				
Segment 20	13.9	20/Low	10-45	0.2 – 1.0
Segment 30	22.4	30/High	90-140	3.1 – 4.9
Segment 50	20.8	50/Low	10-45	0.3 – 1.5
Segment 60	53.5	60/Low	10-45	0.8 – 3.8
Segment 90	29.2	90/Low	10-45	0.5 – 2.1
Segment 110	12.7	110/Very Low	0-10	0.0 – 0.2
Segment 130	35.2	130/Very Low	0-10	0.0 – 0.6
Segment 140	8.4	140/Low	10-45	0.1 – 0.6
Ivanpah – Table Mountain #1 & 2[4]	18.3	10 & 20/Low	10-45	0.3 – 1.3
Total Acres	to be determined			

[1] Includes 0.8 acres of temporary disturbance for telecommunications line and 10 acres of temporary disturbance for laydown area.
[2] Includes 0.7 acre plant site (one of two equal sized options)
[3] Segment acreages to be revised.
[4] Assumes use of double-circuit construction.

Table 7. Estimated Numbers of Desert Tortoise Affected by Facilities Construction Primm Plant Site Alternative.

	Total Acres Disturbed[1]	Representative Segment/Density	Tortoise Density Estimates (#/sq.mile)	Number of Tortoise Potentially Affected
Ivanpah Energy Center[1]	19.9	Low	10-45	0.3 – 1.4
Access Roads	- 0 -	---	---	---
Water Treatment Plant[2]	0.7	60/Low	10-45	negligible
Water Supply Pipeline	53.1	to be determined	to be determined	to be determined
Ivanpah-Mead Transmission Line[3]				
Segment 15[4]	to be determined	to be determined	to be determined	to be determined
Segment 60	53.5	60/Low	10-45	0.8 – 3.8
Segment 90	29.2	90/Low	10-45	0.5 – 2.1
Segment 110	12.7	110/Very Low	0-10	0.0 – 0.2
Segment 130	35.2	130/Very Low	0-10	0.0 – 0.6
Segment 140	8.4	140/Low	10-45	0.1 – 0.6
Ivanpah – Table Mountain	18.3	10 & 20/Low	10-45	0.3 – 1.3
Segment 15	Included in Above	---	---	---
Segment 50	20.8	50/Low	10-45	0.3 – 1.5
Segment 30	22.4	30/High	90-140	3.1 – 4.9
Segment 10	15.0	10/Low	10-45	0.2 – 1.1
Total Acres	to be determined			

[1] Includes 0.8 acres of temporary disturbance for telecommunications line and 10 acres of temporary disturbance for laydown area.
[2] Includes 0.7 acre plant site (one of two equal sized options)
[3] Segment acreages to be revised.
[4] Assumes double-circuit construction.

6.2 INDIRECT EFFECTS

Potential indirect impacts from construction and operation of the proposed project include increased human presence, increased levels of traffic, increased levels of noise, and night lighting of project facilities. Increased vehicular activity would increase the risk of tortoise mortality. Installation of new transmission line structures would create additional perching sites, thus increasing the risk of predation on juvenile tortoises.

Potential noise impacts to desert tortoise were reported by Power Engineers, Inc. (2002) in their Environmental Assessment entitled: *Northwest Service Upgrade – Centennial Plan for the Harry Allen – Northwest 500 kV Transmission Line* in which they point out that "Older tortoises are not apparently affected as much as younger juveniles, however, they are extremely adaptable to the intermittent projected noise (that would result from transmission line construction)." Power also states that research conducted by Bowles, *et al.* (1999) indicates that tortoise were tolerant of short-term exposures to sonic booms at 120 to 140 dB-A as well as aircraft noise of approximately 105 dB-A that extend approximately 40 minutes. Desert tortoise populations that would be most affected by construction would be located in Ivanpah and Eldorado valleys, along the southern access road, water supply pipeline, and transmission line. The severity of such impacts could be ameliorated by scheduling construction during periods when the species is inactive.

7. DETERMINATION

Construction of the Ivanpah Energy Center and related facilities would result in significant impacts to the desert tortoise. Construction of the Proposed Goodsprings Plant Site (and related project elements) would directly affect approximately 115 acres of moderate density (Category B) habitat. Construction of Primm Plant Site Alternative (and related project elements) would directly affect approximately 27 acres of moderate density (Category B) habitat. Impacts to the species within Category C density habitat (east of I-15) would result in moderate impacts to the species. Project alternatives and related elements and acreages within Category B density habitat are shown on Table 8.

Table 8. Desert Tortoise Category B Habitat Impacts by Project Alternative and Element

	Goodsprings Plant Site		Primm Plant Site	
	Permanent	**Temporary**	**Permanent**	**Temporary**
Plant Site	30.0	10.0	0.0	0.0
Natural Gas Supply Pipeline	0.0	0.0	0.0	0.0
North Access Road	2.7	0.0	0.0	0.0
South Access Road	0.0	0.0	0.0	0.0
Water Supply Pipeline	0.0	31.6	0.0	0.0
Telecommunications Line	0.0	0.0	0.0	0.0
Pole Site Work Areas	0.0	22.5	0.0	22.5
Pulling & Tensioning	0.0	10.0	0.0	0.0
Trans. Access Roads	2.7	0.0	0.0	0.0
Spur Roads	0.8	1.0	0.8	0.0
Total Acres - Category B	**36.2**	**78.5**	**0.8**	**26.5**

8. RECOMMENDED CONSERVATION AND RECOVERY MEASURES

The conservation and recovery measures recommended for this project are based on biological opinions issued by the USFWS for other projects affecting desert tortoises. All temporary disturbances will require restoration efforts consistent with the BLM Las Vegas Field Office draft restoration plan. This restoration plan outlines restoration techniques based on habitat sensitivity and degree of disturbance. Additional mitigation measures are described below.

- Desert Tortoise Protection Education

A desert tortoise education program will be presented to all personnel on-site during construction and operation of the proposed project. The program will include information on the biology and distribution of the desert tortoise, its legal status and occurrence in the proposed project area, the definition of "take" and associated penalties, the measures designed to minimize the effects of construction activities, methods employees can use to implement the measures, and reporting procedures to be used when desert tortoises are encountered.

- Flagging Construction Boundaries

All areas that will be disturbed will have boundaries flagged before beginning any activities, and all disturbances will be confined to the flagged areas. All project personnel will be instructed that their activities must be confined within the flagged areas. Disturbance beyond the construction zone is prohibited. A desert tortoise biologist may be assigned to construction activities, if warranted. The biologist would be responsible for site clearance. Refer to "Construction Monitoring," below.

- Tortoise Fencing

Tortoise fencing will be installed around the proposed plant site, temporary laydown area, access roads, and wastewater treatment plant site. Temporary tortoise fencing will be installed at work sites, when appropriate. All fencing will meet requirements established by the BLM and will be periodically checked and repaired/replaced, as needed. Tortoise guards will be installed at an appropriate location along the northern access road.

- Tortoise Removal

Prior to initiation of surface-disturbing activities, a qualified biologist will conduct a clearance survey to locate and remove tortoises using techniques that provide full coverage of all project areas. Two complete passes of complete coverage will be conducted. All desert tortoise burrows, and burrows constructed by other species that might be used by desert tortoises, will be examined to determine occupancy of each burrow by desert tortoises.

All burrows found within areas proposed for disturbance, whether occupied or vacant, will be excavated by a qualified biologist and collapsed or block to prevent occupation by desert

tortoises. All burrows will be excavated with hand tools to allow removal of desert tortoises and/or desert tortoise eggs. All desert tortoise handling and burrow excavations, including nests, will be conducted by a qualified desert tortoise biologist in accordance with the USFWS approved protocol (Desert Tortoise Council 1994, revised 1999).

All desert tortoises and desert tortoise eggs will re-located off-site 300 to 1,000 feet into adjacent undisturbed habitat. A pair of new, disposable latex gloves will be used for each tortoise that must be handled. After use, the gloves will be properly disposed. Tortoises found above ground will be place under a marked bush in the shade. A tortoise located in a burrow will be placed in an existing unoccupied burrow of the same size and orientation as the one from which it was removed. If a suitable natural burrow is unavailable, a qualified biologist will construct one of the same size and orientation as the one from which it was removed. The construction method will adhere to the protocol for burrow construction in Section B-5-f (Desert Tortoise Council 1994, revised 1999). Any tortoise found within one hour before nightfall will be placed individually in a clean cardboard box and kept overnight in a cool, predator-free location. To minimize stress to the tortoise, the box will be covered and kept upright. Each box will be used only once and will then be discarded. The tortoise will be released the next day in the same area from which it was collected and placed under a marked bush in the shade.

- Reporting Requirements

The on-site biologist will record each observation of handled desert tortoises. Data will include the following: location, date, time of observation, whether the tortoise was handled, the general health of the tortoise, whether it voided its bladder, the location the tortoise moved from and the location it moved to, and any unique physical characteristics. Reports documenting the effectiveness and compliance with the tortoise protection measures will be prepared every six months. A final report will be reviewed and approved by the BLM and then submitted to the USFWS within 90 days of completion of construction.

- Speed Limits and Signs

Vehicles will not exceed 25 miles per hour on access roads during the period of highest desert tortoise activity (March 1 through November 1). Speed limit signs will be installed. Caution signs indicating the presence of desert tortoises will be posted at the beginning of the access road, midway to the project, and at the project plant site. Qualified on-site biologists will monitor speed limit compliance during construction.

- Trash and Litter Control

Trash and food items will be promptly disposed in predator-proof containers with resealing lids. Trash containers will be emptied daily, and waste will be removed from the project area and disposed in an approved off-site landfill. Construction waste will also be removed from the site each day and properly disposed.

- Spill Handling Procedures

All fuel, transmission or brake fluid leaks, or other hazardous waste leaks, spills, or releases will be reported immediately to the designated environmental supervisor. The environmental supervisor shall be responsible for spill material removal and disposal to an approved off-site landfill, and if necessary, will notify the appropriate federal agency. Servicing of construction equipment will take place at a designated area on privately-owned lands.

- Construction Methods

To minimize disturbance to tortoise habitat and minimize the potential for construction related tortoise mortality, the following construction methods will be implemented:

- Cross-country travel and travel outside construction zones will be prohibited.
- To the greatest extent possible, stockpile sites, turn around areas, and staging areas will be located on previously disturbed areas.
- Open trenches or holes that pose a potential to entrap or injure tortoises will be capped and /or escape ramps will be located not less than every 1,000 feet.
- Stockpiled pipes that could attract tortoises will be capped or checked by a biological monitor before use.
- Anti-perching devices may be installed on transmission towers to reduce avian predation on juvenile tortoises. The use of anti-perching devices will be at the discretion and through the direction of the BLM.

- Construction Monitoring

During construction activities, qualified biologists will be on site to monitor for tortoises, move tortoises if necessary, provide instruction as need, and monitor and report on compliance.

- Habitat Compensation

In accordance with the Desert Conservation Plan, mitigation fees of $633 per acre of disturbance to desert tortoise habitat on BLM land would be paid by the Ivanpah Energy Center to Clark County. The proposed project would disturb a maximum of 318.1 acres of tortoise habitat for a total fee of $201,357 if paid in the year 2002. This cost is indexed for inflation and will be adjusted for the year the right-of-way is approved.

IX. LITERATURE CITED AND REFERENCES

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States. Ed K.H. Berry. Desert Tortoise Council Report to the U.S. Fish and Wildlife Service. Pp 26-60.

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Karl, A. 1980. Distribution and relative densities of the desert tortoise in Nevada. Pages 75-87 in K.A. Hashagen (ed.) Proceedings 1980 Symposium of the Desert Tortoise Council, Long Beach, Ca.

Longwell, C.R. E.H. Pampeyan, Ben Boyer, and R.J. Roberts 1965 *Geology and Mineral Deposits of Clark County, Nevada.* Nevada Bureau of Mines and Geology, Bulletin 62. Mackay School of Mines, University of Nevada-Reno.

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Proposed Table Mountain Substation

Proposed IEC Plant Site

Biological Survey & Vegetation West. Based on USGS 7.5' State Line Pass (1985), Roach (1985), McCullough Pass (1989), Jean (1989), Hidden Valley (1989), and Goodsprings (1989) quadrangles.

Legend

- Possible Penstemon sp.
- Possible Penstemon sp.
- Creosote Bush-White Bursage
- Mixed Scrub-Mixed Succulent
- Blackbrush
- Desert Saltbush-Creosote Bush
- Stabilized Dune
- Mixed Scrub - Mixed Succulent (over entire area)
- Road
- Proposed Centerline
- Quadrangle Boundary
- Triangle
- Waterline
- Archeological Site
- Kit Fox Burrow
- Live Tortoise
- Mine Shaft
- Old Tortoise Burrow
- Prickly Poppy
- Tortoise Egg Shell
- Tortoise Scat
- Tortoise Skeleton
- Wash with possible Penstemon
- Active Tortoise Burrow
- Chuckwalla Scat
- Caliche Den
- Limestone Rock-Caliche

N

Project Area

FIGURE 1
BIOLOGICAL RESOURCES
IVANPAH ENERGY CENTER PROJECT

APPROX. SCALE

0 0.5 1 1.5 Miles

PARSONS



Biological Survey & Vegetation West. Based on USGS 7.5' State Line Pass (1985), Roach (1985), McCullough Pass (1989), Jean (1989), Hidden Valley (1989), and Goodsprings (1989) quadrangles.

Legend

- Possible Penstemon sp.
- Possible Penstemon sp.
- Creosote Bush-White Bursage
- Mixed Scrub-Mixed Succulent
- Blackbrush
- Desert Saltbush-Creosote Bush
- Stabilized Dune
- Mixed Scrub - Mixed Succulent (over entire area)
- Road
- Proposed Centerline
- Quadrangle Boundary
- Triangle
- Waterline
- Archeological Site
- Kit Fox Burrow
- Live Tortoise
- Mine Shaft
- Old Tortoise Burrow
- Prickly Poppy
- Tortoise Egg Shell
- Tortoise Scat
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- Wash with possible Penstemon
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- Chuckwalla Scat
- Caliche Den
- Limestone Rock-Caliche

N

Project Area

Jean 1989

Roach 1985

Hidden Valley 1989

McCullough Pass 1989

SHEEP MOUNTAIN

FIGURE 2
BIOLOGICAL RESOURCES
IVANPAH ENERGY CENTER PROJECT

APPROX. SCALE

0 0.5 1 1.5 Miles

PARSONS

Biological Survey & Vegetation - Central. Based on USGS 7.5'McCullough Pass (1989), Hidden Valley (1989), McCollough Mountain NE (1989), and Sloan SE (1989) quadrangles.

Legend

- Possible Penstemon sp.
- Possible Penstemon sp.
- Creosote Bush-White Bursage
- Mixed Scrub-Mixed Succulent
- Blackbrush
- Desert Saltbush-Creosote Bush
- Stabilized Dune
- Mixed Scrub - Mixed Succulent (over entire area)
- Road
- Proposed Centerline
- Quadrangle Boundary
- Triangle
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- Archeological Site
- Kit Fox Burrow
- Live Tortoise
- Mine Shaft
- Old Tortoise Burrow
- Prickly Poppy
- Tortoise Egg Shell
- Tortoise Scat
- Tortoise Skeleton
- Wash with possible Penstemon
- Active Tortoise Burrow
- Chuckwalla Scat
- Caliche Den
- Limestone Rock-Caliche

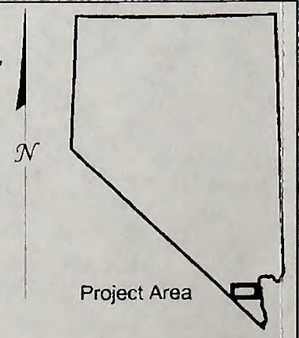


FIGURE 3
BIOLOGICAL RESOURCES

IVANPAH ENERGY CENTER PROJECT

APPROX. SCALE

0 0.5 1 1.5 Miles

PARSONS



Biological Survey & Vegetation - Central. Based on USGS 7.5'McCullough Pass (1989), Hidden Valley (1989), McCollough Mountain NE (1989), and Sloan SE (1989) quadrangles.

Legend

- Possible Penstemon sp.
- Possible Penstemon sp.
- Creosote Bush-White Bursage
- Mixed Scrub-Mixed Succulent
- Blackbrush
- Desert Saltbush-Creosote Bush
- Stabilized Dune
- Mixed Scrub - Mixed Succulent (over entire area)
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- Tortoise Scat
- Tortoise Skeleton
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- Active Tortoise Burrow
- Chuckwalla Scat
- Caliche Den
- Limestone Rock-Caliche

N

Project Area

MCCULLOUGH

RANGE

ELDORADO VALLEY

TRANS LINES

LINES

Substation

FIGURE 4
BIOLOGICAL RESOURCES
IVANPAH ENERGY CENTER PROJECT

APPROX. SCALE

0 0.5 1 1.5 Miles

PARSONS

Biological Survey & Vegetation East. Based on USGS 7.5' Sloan SE (1989), Boulder City (1958/83), Boulder City NW (1958/83), and Boulder City SW (1958/73) quadrangles.

Legend

- Possible Penstemon sp.
- Possible Penstemon sp.
- Creosote Bush-White Bursage
- Mixed Scrub-Mixed Succulent
- Blackbrush
- Desert Saltbush-Creosote Bush
- Stabilized Dune
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- Prickly Poppy
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- Tortoise Scat
- Tortoise Skeleton
- Wash with possible Penstemon
- Active Tortoise Burrow
- Chuckwalla Scat
- Caliche Den
- Limestone Rock-Caliche

N

Project Area

Boulder City NW 1958/1983

Boulder City SW 1958/1973

ELDORADO DRY LAKE

ELDORADO VALLEY DRY LAKE (DEPRESSION)

FIGURE 5
BIOLOGICAL RESOURCES
IVANPAH ENERGY CENTER PROJECT

APPROX. SCALE

0 0.5 1 1.5 Miles

PARSONS

Mead Substation

Biological Survey & Vegetation East. Based on
USGS 7.5' Sloan SE (1989), Boulder City (1958/83),
Boulder City NW (1958/83), and
Boulder City SW (1958/73) quadrangles.

Legend

- Possible Penstemon sp.
- Possible Penstemon sp.
- Creosote Bush-White Bursage
- Mixed Scrub-Mixed Succulent
- Blackbrush
- Desert Saltbush-Creosote Bush
- Stabilized Dune
- Mixed Scrub - Mixed Succulent (over entire area)
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- Tortoise Egg Shell
- Tortoise Scat
- Tortoise Skeleton
- Wash with possible Penstemon
- Active Tortoise Burrow
- Chuckwalla Scat
- Caliche Den
- Limestone Rock-Caliche

N

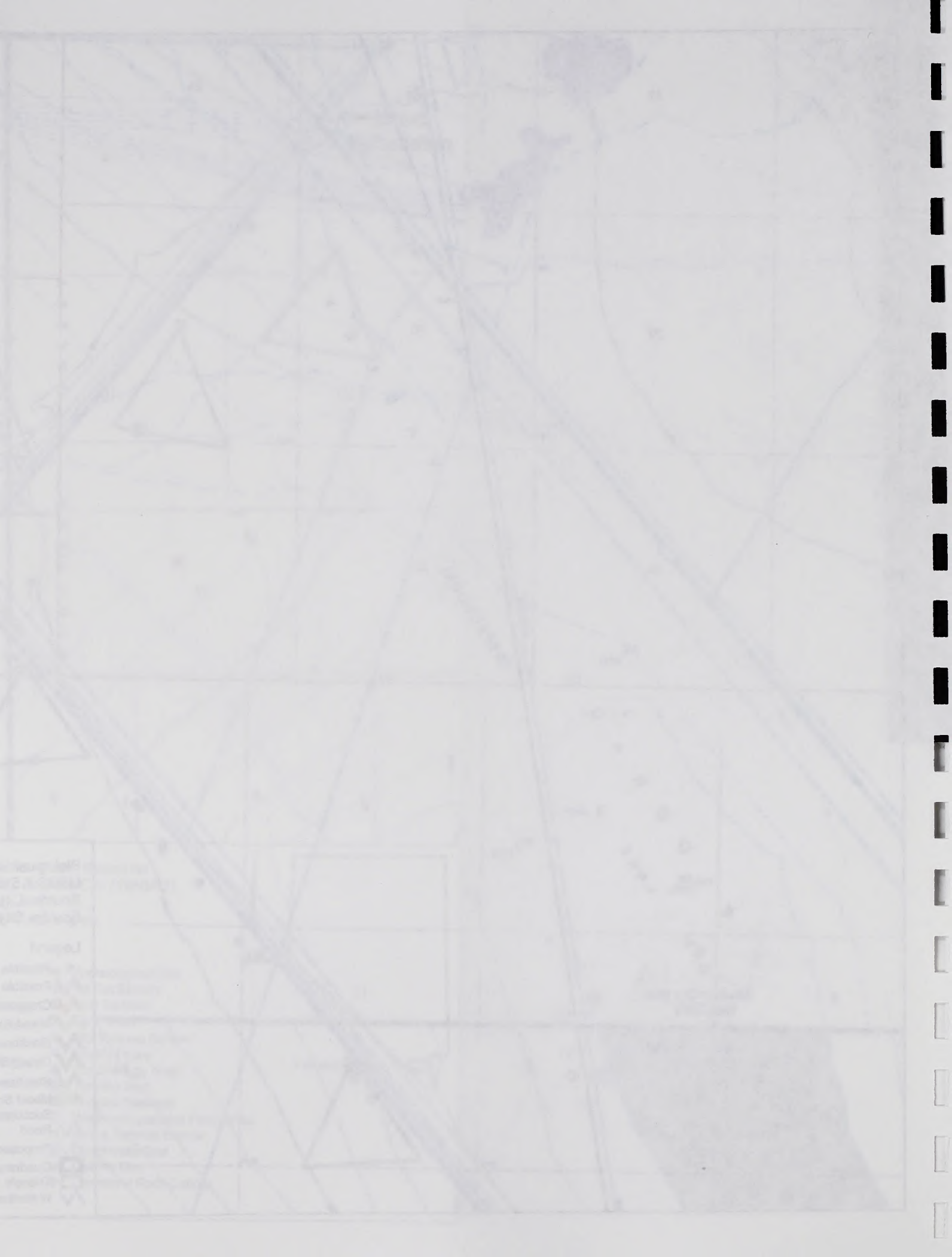
Project Area

FIGURE 6
BIOLOGICAL RESOURCES
IVANPAH ENERGY CENTER PROJECT

APPROX. SCALE

0 0.5 1 1.5 Miles

PARSONS



APPENDIX G
RECREATION RESOURCES

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Las Vegas Field Office
4701 N. Torrey Pines Drive
Las Vegas, Nevada 89130
http://www.nv.blm.gov

In Reply Refer To:
8372
(NV-052)

May 15, 2002

Dear Interested Party;

In keeping with our efforts of informing the public of actions occurring on public lands, this letter is to inform you of Special Recreation Permit (SRP) applications we have received for activities proposed for the period July 1, 2002 to December 31, 2002. In an effort to expedite processing of applications; save on mailing time and costs; and to ensure that all interested parties receive notification and are provided an opportunity to comment, we will be sending out summaries of applications received two times annually. The summaries will cover the periods January 1 to June 30 and July 1 to December 31.

The comment period for the applications identified in this summary ends on June 21, 2002. Direct comments or questions to the individuals identified as the **BLM Contact** on each of the applications. Please indicate the **Permit Number** in your correspondence and mail it to the address above. Your continued interest is appreciated and we are committed to keeping you informed of any SRP applications proposing activities on the public lands.

Sincerely,

John Jamrog acting
Assistant Field Office
Manager - Recreation and
Renewable Resources

SUMMARY OF SPECIAL RECREATION PERMIT APPLICATIONS

For Period July 1, 2002 to December 31, 2002
(Excluding Red Rock Canyon National Conservation Area)

Permit Number: NV-050-02-042
Applicants Name: SCORE International
Proposed Date of Activity: Saturday September 14, 2002
Location of Activity: Jean/Roach dry lakes area
BLM Contact: Bob Bruno (702) 515-5078
Description of Activity: Our office has received a Special Recreation Permit and Application from Sal Fish, President of SCORE International to conduct their annual off road vehicle (OHV) event, the SCORE "Primm 300" race. The proposed event is an annual OHV event over existing race course used in numerous past OHV events by SCORE and SNORE. Drivers would attempt to complete (3) laps over the 69.8 mile course to finish. Designated pit locations and check points are limited to previously disturbed sites only. SCORE anticipates approximately 150-175 entrants and upwards of 2000 race-related pit crew members, families and friends. Upwards of 500 to 1,000 non race-related spectators are anticipated, and are limited to the official spectator area at the northernmost portion of the race course. The main pit and start/finish area would be located on private property at Buffalo Bill's Hotel/Casino, located at Primm, NV. The main spectator area, manufacturers contingency area, concessions, bleachers, and ample spectator parking will occur on private property.

Legal Description: T. 24 S., R. 61 E., Sec.'s 76, 17, 18 , 20, 29, and 30;
T. 24 S., R. 60 E., Sec.'s 11, 12, 14, 15, 21, 22, 25, 26, 28, 29, 31, 32, and 35;
T. 25 S., R. 60 E., Sec.'s 2, 5-8, 11-14, 16, 17, 21, 23, 24, 26, 28, 33, and 35;
T. 25 S., R. 59 E., Sec.'s 27, and 34-36;
T. 26 S., R. 60 E., Sec.'s 2, 4-8, 11, 14, 16, 17, 21-23, 27, and 28;
T. 26 S., R. 59 E., Sec.'s 2-4, 9-16, 21-24, 27, 28, 32, and 33;
T. 27 S., R. 59 E., Sec.'s 4, and 5.

Permit Number: NV-050-02-043
Applicants Name: MRAN Night Race
Proposed Date of Activity: September 28, 2002
Location of Activity: Jean dry lake area
BLM Contact: Bob Bruno (702) 515-5078
Description of Activity: Our office has received a Special Recreation Permit Application from Dave Wilson, of the Motorcycle Racing Association of Nevada (MRAN). The organization propose to conduct the "MRAN Night Desert Motorcycle Race" on Saturday evening September 28, 2002,, at 5:00 PM, over public lands in the Jean dry lake area shown on the attached race map.

MRAN anticipate 50 TO 60 riders to participate in the night race. Motorcycles and all-terrain vehicles (ATVs) would race. All classes would race six laps over one 15 mile loop, for a total of 90 miles to finish. A one lap non speed non-competitive and escorted pre-run lap would be provided during daylight prior to the start of the event to allow all entrants to view the race course before the race. Approximately 150 to 200 race related pit crews, families and friends are expected, and all would be limited to the central pit and start/finish area only.

The proposed course consists mainly of existing motorcycle and buggy course, and sand/gravel washes used in numerous previous events. The race would have a timed start, with riders starting in groups by class. Legal Description: T. 25 S., R. 61 E., Sec.'s 19. 30, and 31; T. 25 S., R. 60 E., Sec.'s 13, 14, 22-28, and 33-36; and, T. 26 S., R. 60 E., Sec.'s 2-4.

Permit Number: NV-050-02-044
Applicants Name: MRAN Night Race
Proposed Date of Activity: August 24, 2002
Location of Activity: Jean dry lake area
BLM Contact: Bob Bruno (702) 515-5078
Description of Activity: Our office has received a Special Recreation Permit Application from Dave Wilson, of the Motorcycle Racing Association of Nevada (MRAN). The organization propose to conduct the "MRAN Night Desert Motorcycle Race" on Saturday evening, August 24, 2002, at 5:00 PM, over public lands in the Jean dry lake area shown on the attached race map.

MRAN anticipate 50 TO 60 riders to participate in the night race. Motorcycles and all-terrain vehicles (ATVs) would race. All classes would race six laps over one 15 mile loop, for a total of 90 miles to finish. A one lap non speed non-competitive and escorted pre-run lap would be provided during daylight prior to the start of the event to allow all entrants to view the race course before the race. Approximately 100 to 150 race related pit crews, families and friends are expected, and all would be limited to the central pit and start/finish area only.

The proposed course consists mainly of existing motorcycle and buggy course, and sand/gravel washes used in numerous previous events. The race would have a timed start, with riders starting in groups by class.

Legal Description: T. 25 S., R. 59 E., Sec.'s 36, and 36; T. 25 S., R. 60 E., Sec.'s 31, and 32; T. 26 S., R. 659 E., Sec.'s 1, 2, and 12; and, T. 26 S., R. 60 E., Sec.'s 5-9, 16, and 17.

Permit Number: NV-050-03-001
Applicants Name: Best In The Desert Racing Association (BITD)
Proposed Date of Activity: Saturday December 7, 2002
Location of Activity: Jean/Roach dry lakes area
BLM Contact: Bob Bruno (702) 515-5078
Description of Activity: "Nevada 200" OHV Race. Our office has received a Special Recreation Permit Application from Casey Folks, Jr., President of the Best In The Desert Racing Association (BITD), to conduct the third annual "Las Vegas 200" off-highway vehicle (OHV) race on Saturday, December 7, 2002, in the Jean and Roach dry lakes area shown on the attached race map.

The BITD anticipates 300 total entrants to participate in this year's event. The race would be open to trucks, cars, motorcycles, and all-terrain vehicles (ATVs). This year's proposed event would be similar to last year's race route. There would be (2) separate race courses. A 76 mile course for cars and trucks would be raced 3 laps to finish. The spectator areas for cars and trucks would be located at the start/finish area, and at Alternate Pit #2, to the end of the abandoned section of frontage road, approximately 3.5 miles south of Jean, Nevada. A 65 mile motorcycle and ATV course would be raced 3 laps to finish. The spectator areas for motorcycles and ATVs would be located at the

start/finish area, and south of the Hidden Valley mine haul road south of the cattle guard.

The two proposed race courses are located on existing truck, car, motorcycle course, jeep trails, powerline and access roads, and sand/gravel dry washes. The start/finish and main pitting area would be located on the western margins of Jean dry lake. The start/finish area, and all other authorized Pit locations are located on 100% disturbed sites used for pitting in previous OHV events. Approximately 1,500 race pit crews would be limited to the main pit area, and authorized pit locations only. All families and friends, and approximately 1,500 other non race-related spectators would be limited to the start/finish spectator area, and authorized spectator locations only.

The race would be a timed event. Both races would start simultaneously, at approximately 8:00 A.M. Cars, trucks, motorcycles and ATVs would start two every 30 seconds. All driver registration, technical inspection, manufacturers contingency, and all other pre-, and post-race activities would occur in Las Vegas on private land.

Legal Description:

Car/Truck Course:
T. 25 S., R. 61 E., Sec.'s 19-30, and 32;
T. 25 S., R. 62 E., Sec. 19;
T. 25 S., R. 60 E., Sec.'s 8-10, 14-17, 21, 23-26, 28, 33, and 35;
T. 25 S., R. 59 E., Sec.'s 26, 27, and 34-36;
T. 26 S., R. 60 E., Sec.'s 2, 4-9, 11, 14-19, 21, 23-24, 27-28, and 34;
T. 26 S., R. 59 E., Sec.'s 1-3, 11-14, 22-24, and 34;
T. 27 S., R. 60 E., Sec.'s 3, 10, 15, and 19-22;
T. 27 S., R. 59 E., Sec.'s 2, 3, and 11-13.

Motorcycle/ATV Course:
T. 23 S., R. 59 E., Sec. 36;
T. 23 S., R. 60 E., Sec.'s 31-32;
T. 24 S., R. 61 E., Sec.'s 9, 10, 16, 17, 20, 21, and 29-31;
T. 24 S., R. 60 E., Sec.'s 5-10, 15-21, 25-26, and 28-35;
T. 24 S., R. 59 E., Sec.'s 1-3, 11-14, 24-26, and 35-36;
T. 25 S., R. 61 E., Sec.'s 6-8, 17, and 18;
T. 25 S., R. 60 E., Sec.'s 2-6, and 9-14.

Permit Number: **NV-050-03-006**
Applicants Name: Eldorado Cowboys Action Shooting Society
Proposed Date of Activity: October 31 - November 2, 2002
Location of Activity: N. Sheep Mtn., Jean dry lake area
BLM Contact: Bob Bruno (702) 515-5078
Description of Activity: Stampede "2002" Cowboy Action Competitive Shoot. Our office has received a Special Recreation Permit Application from Charles "Blind Bill" Hincheliffe, president, Eldorado Cowboys, a National Rifle Association affiliated cowboy action shooting club. The club propose their annual Stampede "2002" competitive cowboy action shoot, October 31 through November 2, 2002. The proposed shoot and event site is identical to previous club competitive

shoots, and is shown on the attached site map.

The cowboy action competitive shoot would consist of a short range rifle, pistol, and shotgun target shooting. All firearms would be civil war era to turn of-the-century, including some black powder weapons, breech and lever-action loading rifles, sidearms, pump shotguns, and other smokeless powder weapons of the era only. Competitors would fire at iron silhouette targets at very short range, as well as a long rifle range. Strict firing line management would be according to Single Action Shooting Society (SASS) Rules, and monitored by a qualified Range Master and Safety Officer. The wearing of western attire is encouraged and worn by all club members and most guests.

The club anticipates approximately 150 to 200 participants over the three day event. A Drummers Row of approximately 10-15 dry goods vendors would sell assorted late 1880s to early 1900s items and clothing. The majority of participants would stay at near-by hotel/casinos in the Jean area. Some entrants and vendors would camp on-site in travel trailers, motor homes and tents. Porta-potties, and litter cans would be placed throughout the area. All event targets, camping, and event-related trash would be removed prior to leaving the site.

Legal Description: T.25S., R.60E., Sec. 6, and 7.

Permit Number: NV-050-03-007
Applicants Name: A.M.A. District 37 Dual Sport Division
Proposed Date of Activity: Day 2, NV portion, Los Angeles to Barstow to Vegas Dual Sport Ride
Location of Activity: Sandy Valley/Red Rock Canyon NCA/Las Vegas
BLM Contact: Bob Bruno (702) 515-5078
Description of Activity: Our office has received a Special Recreation Permit Application from David Tonkiss, President, American Motorcyclist Association (AMA), District 37, Dual Sport division, proposing the use of existing routes of travel through the Las Vegas District, Nevada, as part of the twentieth annual "Los Angeles to Barstow to Las Vegas" (LA-B To V) Dual Sport Trail Ride. The 2002 LA-B To V (Day 2, Nevada portion), is scheduled for Saturday, November 30, 2002. The Barstow Resource Area, California Desert District (CDD), would issue a separate permit for the event traveling through California public lands. The LA-B To V event begins in the Los Angeles area on 11/29 (Day 1), and concludes in Las Vegas on the following day, 11/30 (Day 2), shown on the attached map.

All participants in this non-speed, non competitive, non-timed self-guided motorcycle scenic tour must ride street-legal, highway registered and licensed dual sport (off-highway capable) motorcycles. All entrants would adhere to posted speed limits, and would not exceed reasonable speeds to safely negotiate technical route segments. All entrants would follow roll chart maps provided by the promoter, and riders would leisurely stop at any time to enjoy the scenery and aesthetics of the ride, take breaks and photographs. No high-speed competition or racing would occur. The proposed route for this year's event is similar to previous years as-ran routes, and is approximately 40 miles in length to Highway 159, Charleston Blvd. The proposed route is entirely on existing routes of travel that are state, county, and federally administered.

Approximately 350 to 375 riders are anticipated for this year's tour. Riders would enter Nevada at

Sandy, then follow county dirt roads through the Humbolt-Toiyabe National Forest, to Hwy 160. Riders would turn west to Lovell Canyon Road, and proceed north to the Red Rock Summit road, entering the Red Rock Canyon National Conservation Area, exiting the scenic loop drive onto Hwy 159. Riders would then either go south to Hwy 160 to enter Las Vegas, or take W. Charleston Road and surface streets into Las Vegas to finish. An optional 14 mile existing dirt route (dotted line), would be used for expert riders who have sufficient daylight and stamina, desiring more dirt road touring before entering Las Vegas. All riders would be assessed an entrance fee to RRCNCA.

Legal Description:
T. 20 S., R. 58 E., Sec.'s 31, and 32;
T. 21 S., R. 58 E., Sec.'s 3-7, 9, 10, 14, 23, 26, and 35;
T. 21 S., R. 57 E., Sec.'s 12, 14, 23, 26-27, 34, and 35:
T. 22 S., R. 58 E., Sec.'s 1-2;
T. 22 S., R. 57 E., Sec.'s 2-3, 4-5, 7-8, 11, 14, 18, 19, 22-24, 27-30, and 36;
T. 23 S., R. 57 E., Sec.'s 1, 11-12, 14, 23, 26, and 34-35;
T. 24 S., R. 57 E., Sec. 2, 3, 11-14, 22-23, 27-28, and 33;
T. 25 S., R. 57 E., Sec.'s 4, 5, 7, and 8.

Permit Number: **NV-050-03-008**
Applicants Name: Eldorado Cowboys
Proposed Date of Activity: On-Going, October 6, 2002 through September 28, 2003
Location of Activity: N. Sheep Mtn., Jean dry lake area
BLM Contact: Bob Bruno (702) 515-5078
Description of Activity: Monthly cowboy action shooting club shoots. Our office has received a Special Recreation Permit Application from Charles "Blind Bill" Hincheliffe, president, Eldorado Cowboys, a National Rifle Association affiliated cowboy action shooting club. The club propose to conduct on-going monthly club shoots, through Fiscal Year '03'. Club shoots would occur on the first Sunday of the month, beginning October 6, 2002, through Sunday, September 28, 2003. The proposed shoot and event site is identical to previous club competitive shoots, and is shown on the attached site map.

The cowboy action club shoots would consist of a short range rifle, pistol, and shotgun target shooting. All firearms would be civil war era to turn of-the-century, including some black powder weapons, breech and lever-action loading rifles, sidearms, pump shotguns, and other smokeless powder weapons of the era only. Members would fire at iron silhouette targets at very short range, as well as a long rifle range. Strict firing line management would be according to Single Action Shooting Society (SASS) Rules, and monitored by a qualified Range Master and Safety Officer.

The club anticipates approximately 10 to 15 participants per each monthly club shoot. All targets, and club related trash would be removed prior to leaving the site.

Legal Description: T.25S., R.60E., Sec. 6, and 7.

Permit Number: **NV-050-03-009**
Applicants Name: Southern Nevada Land Cruisers

Proposed Date of Activity: October 25-27, 2002
Location of Activity: Gold Butte / Arizona Strip
BLM Contact: Bob Bruno (702) 515-5078
Description of Activity: Our office has received a Special Recreation Permit Application from William J. Scott, Chairman of the Southern Nevada Land Cruisers Club. The SNLC propose the club's annual "Glitter Gulch Gambol", a non speed, non-competitive, family oriented 4x4 vehicle rides on existing roads, trails and dry washes shown on the attached map. Note: Map only shows the Whitney Pockets group camp site, and the Gold Butte BLM Back Country Byway dirt road and primitive segment from Whitney Pockets to Gold Butte, to Devils Throat, and an existing route into Arizona. The remaining routes are proposed on public lands on the Arizona Strip, managed by the BLM, St. George, Utah Field Office. Maps are available upon request.

The event would be held October 25-26, 2002, and would be limited to the first 75 entrants. All routes are numbered county roads found in the Street Atlas USA. All vehicles would be street legal and licensed. Three scenic drives would occur on Friday, 10/25, and three scenic drives on Saturday, 10/26. Each tour would be at slow and reasonable speeds. Each trip would be led by a trip leader, and a caboose follow-up car. If a vehicle breaks or needs assistance, all vehicles stop until the vehicle is repaired.

Camping would occur at Whitney Pockets, at the end of the paved road segment on the Gold Butte BLM Back Country Byway. Porta-potties and trash containers would be placed throughout the camping area, and removed prior to leaving the area. A potluck dinner, breakfast and dinner will be organized over the weekend. Fun activities would be provided for the children in camp. For camp security a camp host would be selected, and a noise curfew would be in effect if other campers are present.

Legal Description: Available upon request.

Permit Number: NV-050-03-010
Applicants Name: Tripoli Vegas Rocketry
Proposed Date of Activity: November 29 - 30, 2002
Location of Activity: Jean Dry Lake
BLM Contact: Bob Bruno (702) 515-5078
Description of Activity: "Turkey Shoot" Competitive Rocket Launches. Our office has received a special Recreation Permit Application from Gordon F. McDaniels, President of the Tripoli Vegas Rocketry Club, a member of the Tripoli Rocketry Association, Inc., who propose to conduct their club's annual regional high power competitive rocket launch. This year's event would be called the "Turkey Shoot", and would consist of approximately 150 to 250 entrants.

All entrants must be over 18 years of age, and all would compete in 3 certification levels. Levels 1-3 are depending on manufacturer, motors, designs, and aerodynamics. Rockets would stand 2 feet to 8 feet in height, and would be powered by ammonium perchlorate, a solid rocket fuel. Each level is capable of attaining 10,000 feet, or higher. Tripoli Vegas would have a FAA standing waiver to launch to 10,000 feet. Rockets exceeding that altitude [to 20,000' or higher], would require a courtesy call-in waiver to McCarran Airport Traffic Control, advising of a rocket launch within 10

to 20 minutes.

Each rocket would be inspected before any launch. Strict flight line protocol would be enforced at the launch site by event officials. All parking, registration, and staging would occur away from the active launch site. Some camping is anticipated on-site, and all spectators would be limited to the parking area near the launch site.

Legal Description: T. 25 S., R. 60 E., Section 9.

Permit Number: NV-050-03-11
Applicants Name: SNARE
Proposed Date of Activity: November 2, 2002
Location of Activity: Dutchman's Pass
BLM Contact: Sarah Lewis
Description of Activity: SNARE has applied for a Special Recreation Permit to conduct an ATV/Motorcycle Nationals race in the Dutchman's Pass area as shown on the attached map. There would be approximately 70 teams. It is anticipated that there may be up to 200 spectators. A drivers meeting is scheduled for 8:45 a.m. and the race will start at 9:00 a.m. on Saturday, November 2, 2002. The proposed course is 22 miles long, and participants will race 5 laps. The proposed course has been raced numerous times by SNARE and other motorcycle clubs. Portable sanitation facilities will be provided. SNARE will work closely with the City of Henderson to make sure that dust containment measure are met.

Legal Description: T. 23 S., R. 63 E., Sec. 6, 7, 17, 18, 19, 20, 21, 28, 29, 30

Permit Number: NV-050-03-12
Applicants Name: SNARE
Proposed Date of Activity: December 7, 2002
Location of Activity: Dutchman's Pass Area
BLM Contact: Sarah Lewis
Description of Activity: SNARE has applied for a Special Recreation Permit to conduct an ATV/Motorcycle race in the Dutchman's Pass area as shown on the attached map. SNARE is anticipating that they will have 75 participants and 150 people serving as pit crews and spectators. A drivers meeting is scheduled for 8:45 a.m. and the race will start at 9:00 a.m. on Saturday, December 7, 2002. The proposed course is 16 miles long, and participants will race 5 laps. The proposed course consists of existing ATV trails, roads and washes. The start/finish, pit and spectator area would be restricted to a previously disturbed area. Portable sanitation facilities would be provided Medical rescue would be on site for the duration of the event.

Legal Description: T. 23 S., R. 63 E., Sec. 16, 17, 20, 21, 28, 29, 30, 32

Permit Number: NV-050-03-014
Applicants Name: MDE International, Inc.
Proposed Date of Activity: On-going, October 1, 2002, through September 30, 2007
Location of Activity: Jean/Roach dry lakes area; Goodsprings area; Nellis Dunes

BLM Contact: Bob Bruno (702) 515-5078

Description of Activity: On Road & 2-Track future model year vehicle testing. Our office has received a permit application from Karl Koehler, site manager, Mechanical Design & Engineering (MDE) International, Inc., to renew their on-going commercial permit, expiring September 30, 2002. MDE International requests a new five year permit, beginning October 1, 2002, through September 30, 2007. MDE, a sub-contractor to the Chrysler and other domestic and international automotive manufacturers, contract to test future (model year) passenger cars and light trucks and some 4-wheel drive vehicles for normal to slow driving, testing frame and body of vehicles, dust penetration, and component wear and tear. MDE has successfully concluded 6 years of vehicle testing with no adverse impacts from their operations.

All vehicle and component testing would be done by licensed and street-legal vehicles, and would be non speed and non-competitive, consisting of 2 vehicles for safety, to 6-10 vehicles at one time testing over approximately two to twenty miles of existing proposed route segments two to five times per week depending on assignments, contracts, and time of year. Vehicle testing would occur on weekdays only, begin early A.M. (sunrise), with each session lasting ½ hour to 3 hours depending on testing parameters and type of vehicle, during daylight hours only. Extended dirt road driving tests would not exceed safe slow speeds (approx. 5 mph to 25 mph). Maximum speed would not exceed 35 mph for any test. Specific testing could be repeated several times in one day over two shifts. Some vehicles would be used repeatedly, for baseline data accumulation over an identified route. Vehicle testing would occur mainly October through June. All vehicle testing would be limited to existing 2-track jeep trails, buggy course, dry lake beds, maintained county roads, powerline, powerline access roads, and dry wash segments shown
-+ on the attached map. Proposed routes were selected due to the close proximity of the I-15 frontage road and other access roads for easy ingress to the area in case of flat tires, or catastrophic mechanical failure.

Legal Location:
As described below, an area within T. 23 S. to T. 27 S. and R. 58 E. to R. 61 E. Vehicle testing would occur in an area from Primm to Goodsprings to State Highway 160 at Mountain Pass on the west; to the crest of the McCullough Mountains on the east, and the California/Nevada border on the south. Nellis Dunes would encompass T. 19 S., R. 63 E., Sections 2-3, 10-17, and 19-30.

Permit Number: NV-050-03-015
Applicants Name: Nevada Cowboys
Proposed Date of Activity: On-Going, October 27, 2002 through September 30, 2007
Location of Activity: N. Sheep Mtn., Jean dry lake area
BLM Contact: Bob Bruno (702) 515-5078
Description of Activity: Monthly cowboy action shooting club shoots. Our office has received a Special Recreation Permit Application from Paul Jackson, President, Nevada Rangers Cowboy Action Shooting Society, a National Rifle Association affiliated cowboy action shooting club. The club propose to conduct on-going monthly club shoots. Club shoots would be over a 5 year period, beginning on the fourth Sunday of the month, October 27, 2002, through September 30, 2007. The proposed shoot site is identical to previous club competitive shoots, and is shown on the attached site map.

The cowboy action club shoots would consist of a short range rifle, pistol, and shotgun target shooting. All firearms would be civil war era to turn of-the-century, including some black powder weapons, breech and lever-action loading rifles, sidearms, pump shotguns, and other smokeless powder weapons of the era only. Members would fire at iron silhouette targets at very short range, as well as a long rifle range. Strict firing line management would be according to Single Action Shooting Society (SASS) Rules, and monitored by a qualified Range Master and Safety Officer.

The club anticipates approximately 30 to 40 participants per each monthly club shoot. All targets, and club related trash would be removed prior to leaving the site.

Legal Description: T.25S., R.60E., Sec. 6, and 7.

Permit Number: NV-050-03-016
Applicants Name: Vegas Valley Four Wheelers
Proposed Date of Activity: November 1-2, 2002
Location of Activity: Logandale Trails Loop Road
BLM Contact: Bob Bruno (702) 515-5078
Description of Activity: Our office has received a Special Recreation Permit Application from John Weiland, president of the Vegas Valley Four Wheelers Club, to conduct their club's annual Hump N' Bump Trail Ride. The ride is a club sponsored invitational non speed and non-competitive ride. Approximately 100 street legal and licensed vehicles are anticipated to attend. Entrants would ride one lap around the Logandale Trails System 13 mile loop drive, shown on the attached event map.

Other informal group rides would take place outside the Logandale Trails System. Approximately 50 to 60 entrants would camp at Stoney's Pad [see map], on the loop drive. Trash dumpsters and porta-potties would be provided. Any trash or litter found along any trail would be collected and deposited in the dumpsters. There would be no rides to any existing cultural sites.

Legal Description: Available upon request.

Permit Number: NV-050-03-017
Applicants Name: Las Vegas Bird Dog Club
Proposed Date of Activity: December 14-15, 2002
Location of Activity: Jean Dry lake bed, southeastern margin
BLM Contact: Bob Bruno (702) 515-5078
Description of Activity: Our office has received a Special Recreation Permit Application from Cindy Yurek, President, Las Vegas Bird Dog Club, who propose to conduct American Kennel Club (AKC) Hunting Dog Tests & Field Trials for various breeds over the weekend of December 14-15, 2002. The club organizers anticipate 20 owners showing up to 45 dogs total. Handlers, judges, and event-related spectators should not exceed 50 people, at the site shown on the attached event map.

The site is located on the southeastern margin of Jean dry lake. The site has been used for dog field trials in previous events. For greater visibility, some judging would occur on horseback, and pen-raised birds would be released for certain tests. The majority of participants would stay at near-by

hotel/casinos in the Jean area. Others would camp on-site in self-contained travel trailers or motor homes. Porta-potties, and litter cans would be placed throughout the area. All camping, equestrian, exotic birds, and event-related trash would be removed prior to leaving the site.

Legal Description: T.25 S., R.60 E., Sec. 23.

Permit Number: **NV-050-03-018**
Applicants Name: Jimmy Lewis Racing, Inc.
Proposed Date of Activity: October 1, 2002, through September 30, 2003
Location of Activity: Jean/Roach dry lakes area/Goodsprings area
BLM Contact: Bob Bruno (702) 515-5078
Description of Activity: On-going off pavement riding school and guided tours. Our office has received a Special Recreation Permit Application from Jimmy Lewis, of Jimmy Lewis Racing, Inc. Jimmy Lewis Racing propose to conduct on-going off-road riding classes and guided tours. Class size would range from 2 - 16 students. All classes would be non speed, non-competitive, and would utilize street-legal and licensed dual purpose motorcycles. Classes would last either one day, or two days, two to four times per month, depending on interest, weather, temperature, or demand. All training and Day 2 escorted tour would occur on existing roads and trails. A tour would utilize a 75 to 100 mile route chosen from existing routes shown on the attached map.

The riding school would be an off-road riding class that aims to teach riders to become more intelligent and efficient riders. Classes would be for all levels of riders, but the most popular class would be for beginning off-roaders. Typically these riders are street riders with many years of experience looking to enjoy the motorcycling experience off the paved road. The classes would be structured where first day instruction centers around proper bike set-up, rider safety, overview of proper land use and issues covered by Right Rider and the Tread Lightly program, and skill development. The second day instruction would focus on skill development in a guided tour providing practical trail situations.

All staging and initial instruction, etc. would take place at Primm, Nevada, on private lands.

Legal Description: As described above, an area within T. 20 S. to T. 27 S. and R. 55 E. to R. 61 E. Riding instruction and escorted tours would occur in an area from Primm to Goodsprings to Sandy, to Pahrump, Lovell Canyon, and Red Rock Canyon NCA on the west; to Las Vegas to the north; to the east side of the McCullough Mountains on the east; and, the California/Nevada border on the south.

Permit Number: **NV-050-03-19**
Applicants Name: Four Winds Adventure Institute
Proposed Date of Activity: February 22-24, 2002
Location of Activity: Gold Butte
BLM Contact: Sarah Lewis
Description of Activity: The Four Winds Adventure Institute has applied for a Special Recreation. Permit to conduct a small portion of an adventure race in the Gold Butte Area. The majority of the event would take place on Lake Mead National Recreation Area. Approximately 10

miles of hiking and mountain biking is proposed to take place on BLM land. It is anticipated that there would be 80 participants. The participants would be limited to existing roads and trails. One transition area would be located on BLM and would be in a previously disturbed area. No new disturbance would be permitted.
All medical and event staff vehicles would be restricted to existing roads.

Location Description: T. 20 S., R. 69 E., Sec. 14, 15, 19, 20, 21 - 26, 35
T. 20 S., R. 70 E., Sec. 19, 20, 29, 32

Permit Number: **NV-050-03-020**
Applicants Name: Vegas Off Road, Inc.
Proposed Date of Activity: On-Going, October1, 2002, through September 30, 2003
Location of Activity: Nellis Dunes
BLM Contact: Bob Bruno (702) 515-5078
Description of Activity: On-going ATV/Motorcycle guided tours
Our office has received a Special Recreation Application from David Dunn, President of Vegas Off Road, Inc., who propose to conduct on-going all-terrain vehicle (ATV) and /or Motorcycle tours in the Nellis Dunes area, shown on the attached map.

All guided tours would begin with a mandatory safety demonstration. Tours would be limited to 2 to 6 riders, and would be 2 to 4 hours in length. Vegas Off Road anticipates initially to conduct 4 to 6 tours per month, weekdays and some weekends, chiefly during the cooler months, from October through the end of May. At no time would riders be allowed to free play. ATVs would predominately utilize the sand dune area; motorcycles would utilize the existing roads, race course segments, trails, and sand/gravel washes throughout the Nellis dunes area.

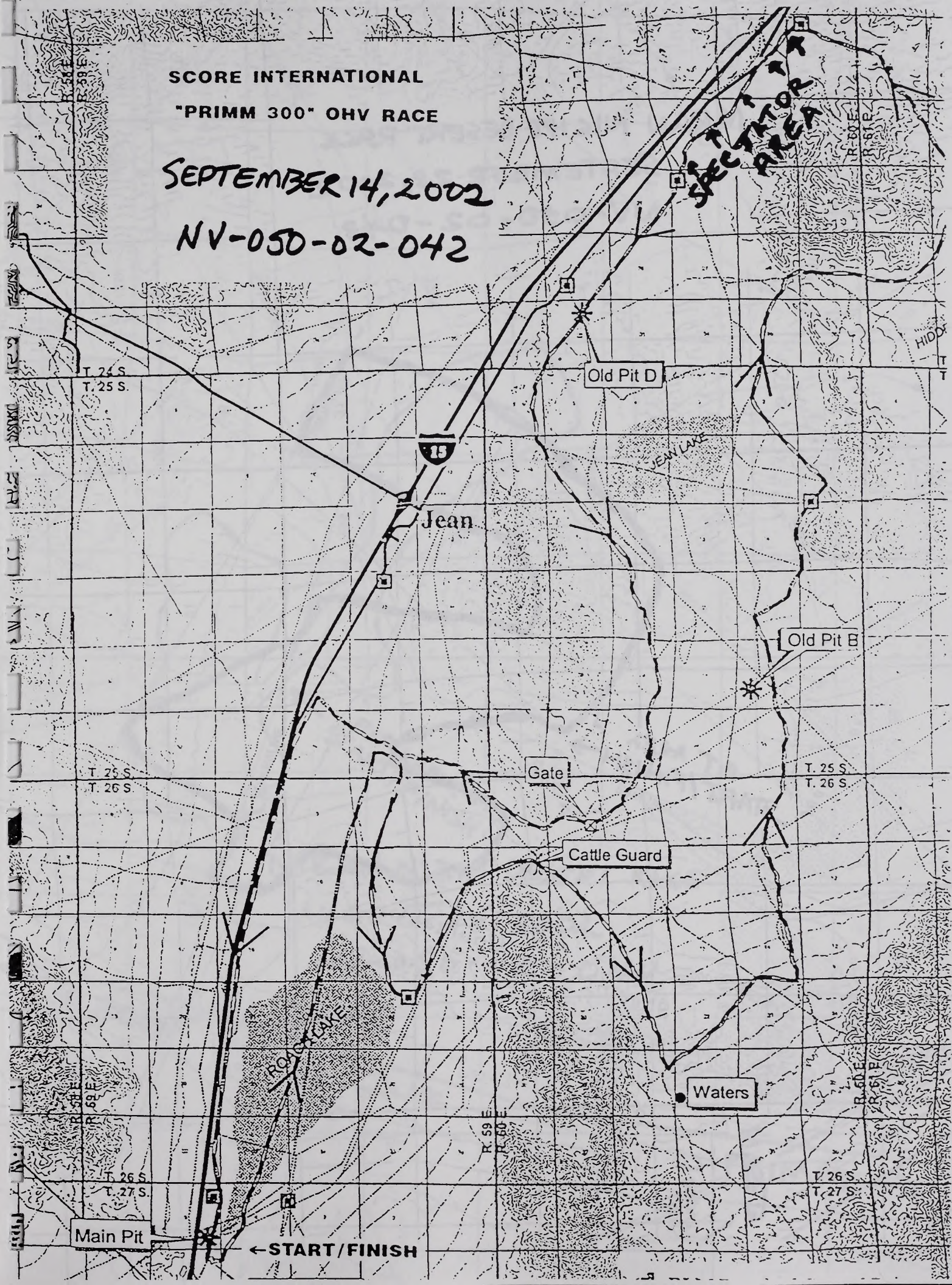
Legal Description: Nellis Dunes would encompass T. 19 S., R. 63 E., Sections 2-3, 10-17, and 19-30.

Permit Number: **NV-050-03-21**
Applicants Name: SNORE
Proposed Date of Activity: October 4 - 5, 2002
Location of Activity: Nellis Dunes
BLM Contact: Sarah Lewis
Description of Activity: SNORE has applied for a Special Recreation Permit to conduct an Truck and Buggy race in the Nellis Dunes area as shown on the attached map. On Friday, October 4th a fun run would be held for race participants to get a feel for the course. It is anticipated that there would be 60 race entrants and 100 spectators. The course would be approximately 50 miles long and participants would race 5 laps. Portable sanitation facilities and trash bags would be provided.

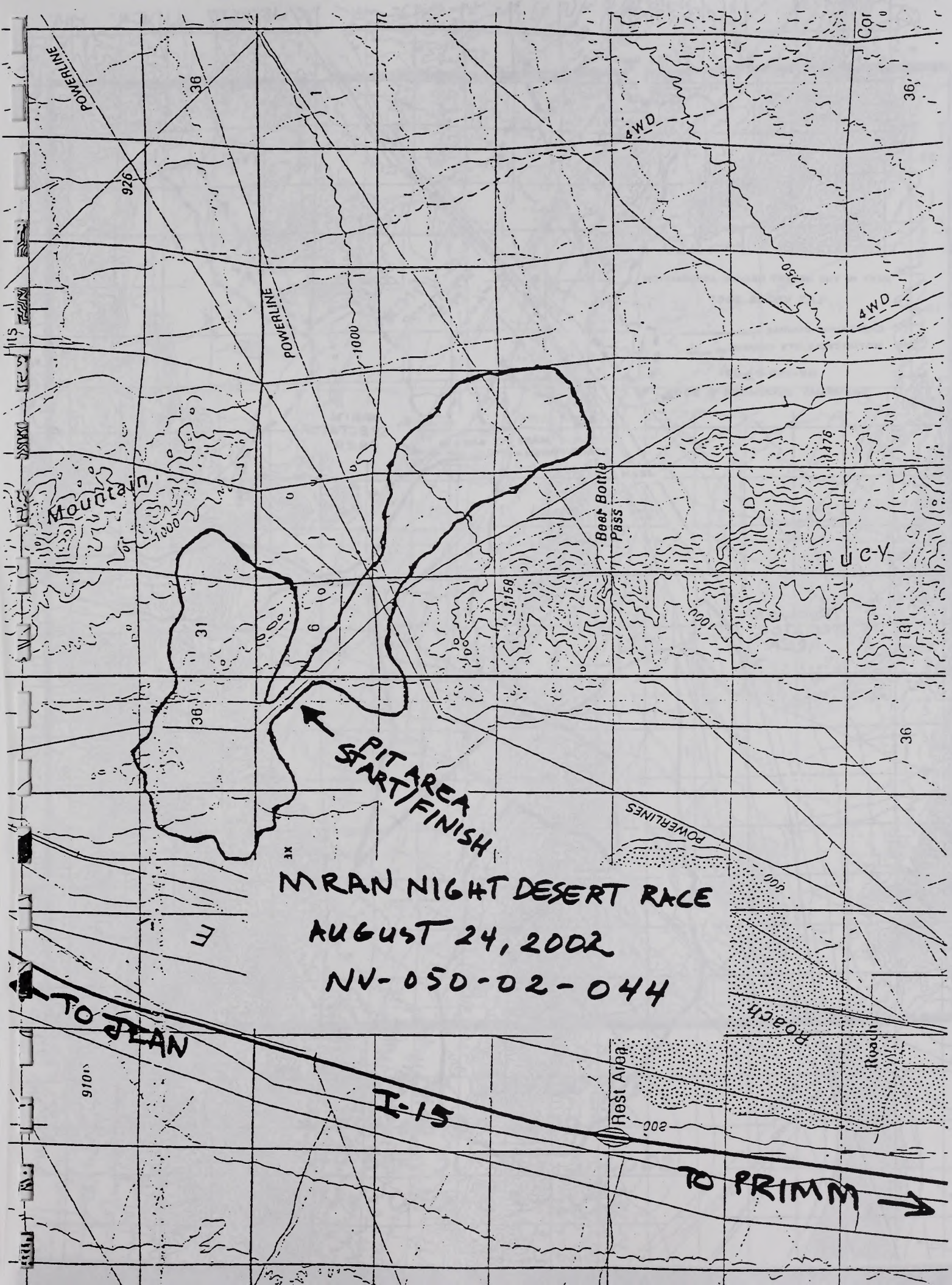
The event would be restricted to existing race course, dry washes and dirt roads. All pit and spectator areas would be located in previously disturbed areas. SNORE would be responsible for dust containment during the course of the event.

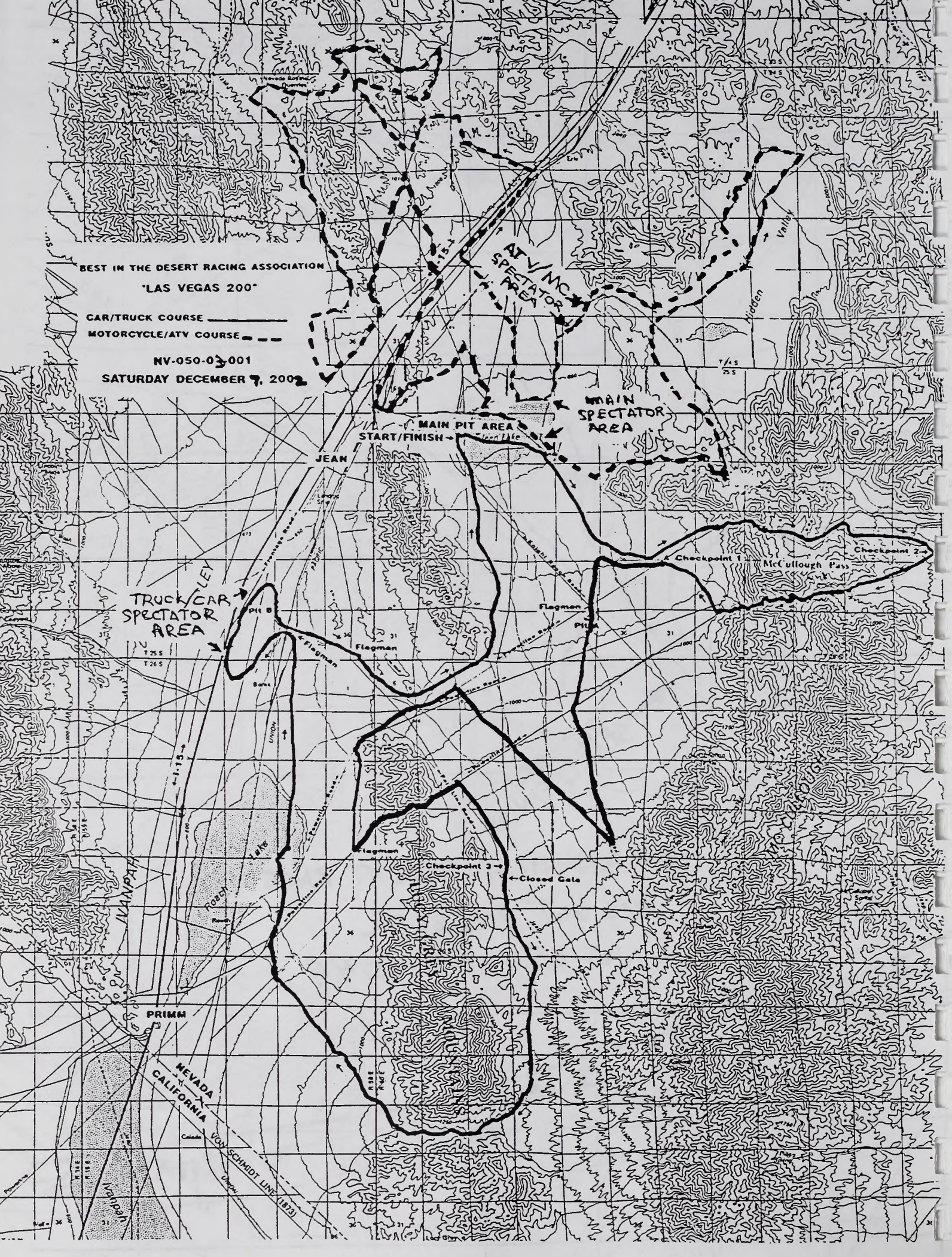
Legal Description: T. 17 S., R. 65 E., Sec. 21, 28, 29, 32, 33, 34

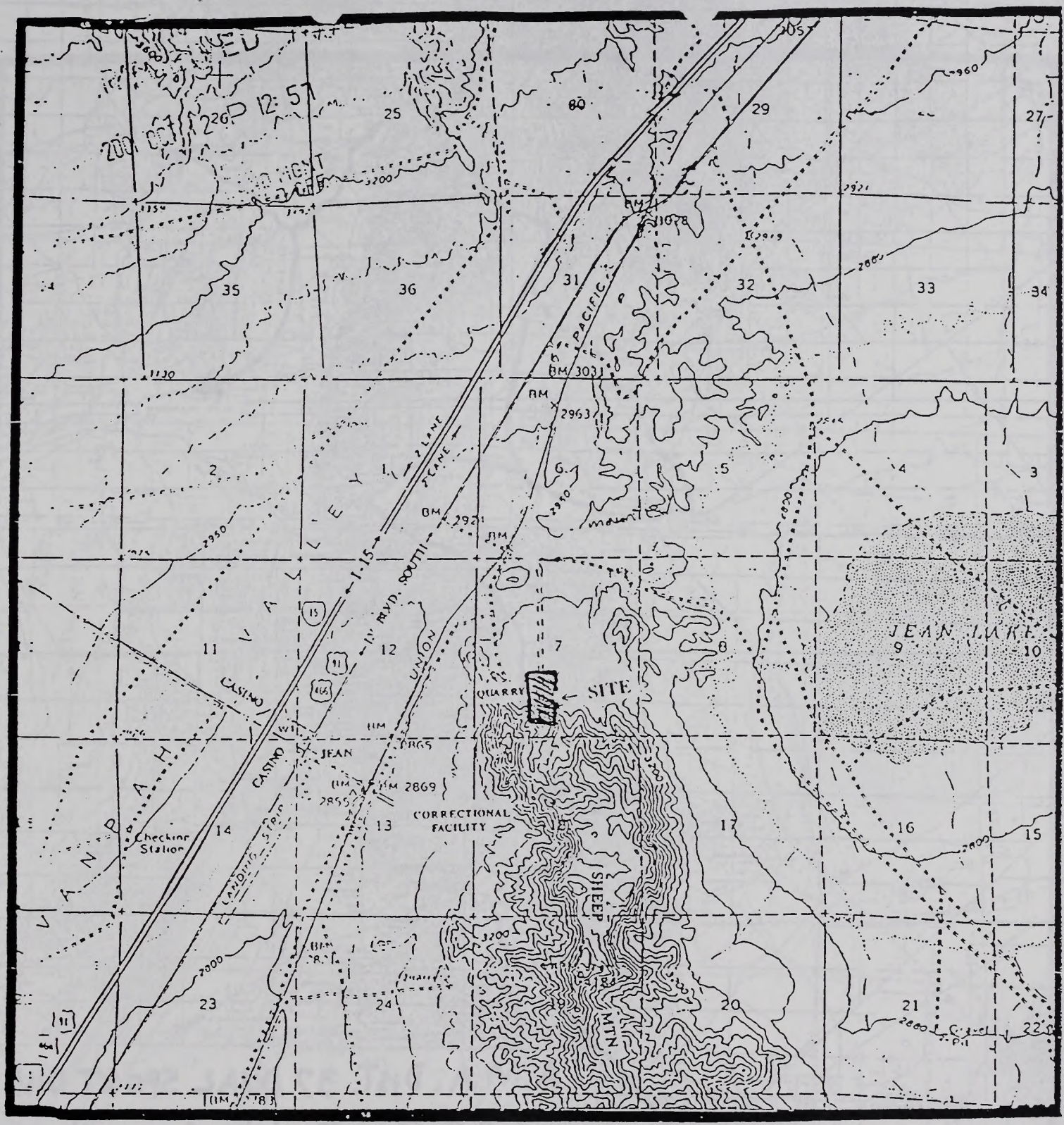
T. 18 S., R. 65 E., Sec. 4 - 8, 18, 19
T. 18 S., R. 64 E., Sec. 12 - 14, 23 - 28, 33, 34
T. 19 S., R. 64 E., Sec. 4, 5, 7, 8, 17, 18, 19, 30, 31
T. 19 S., R. 63 E., Sec. 3, 10, 11, 12 - 15, 22 - 26, 35, 36


SCORE INTERNATIONAL
"PRIMM 300" OHV RACE
SEPTEMBER 14, 2002
NV-050-02-042
SPECTATOR PREP
Old Pit D
Old Pit B
Jean
JEAN LAKE
Gate
Cattle Guard
Waters
ROACH LAKE
Main Pit
←START/FINISH
T. 25 S.
T. 26 S.
T. 27 S.
R. 58 E.
R. 59 E.
R. 60 E.
R. 61 E.

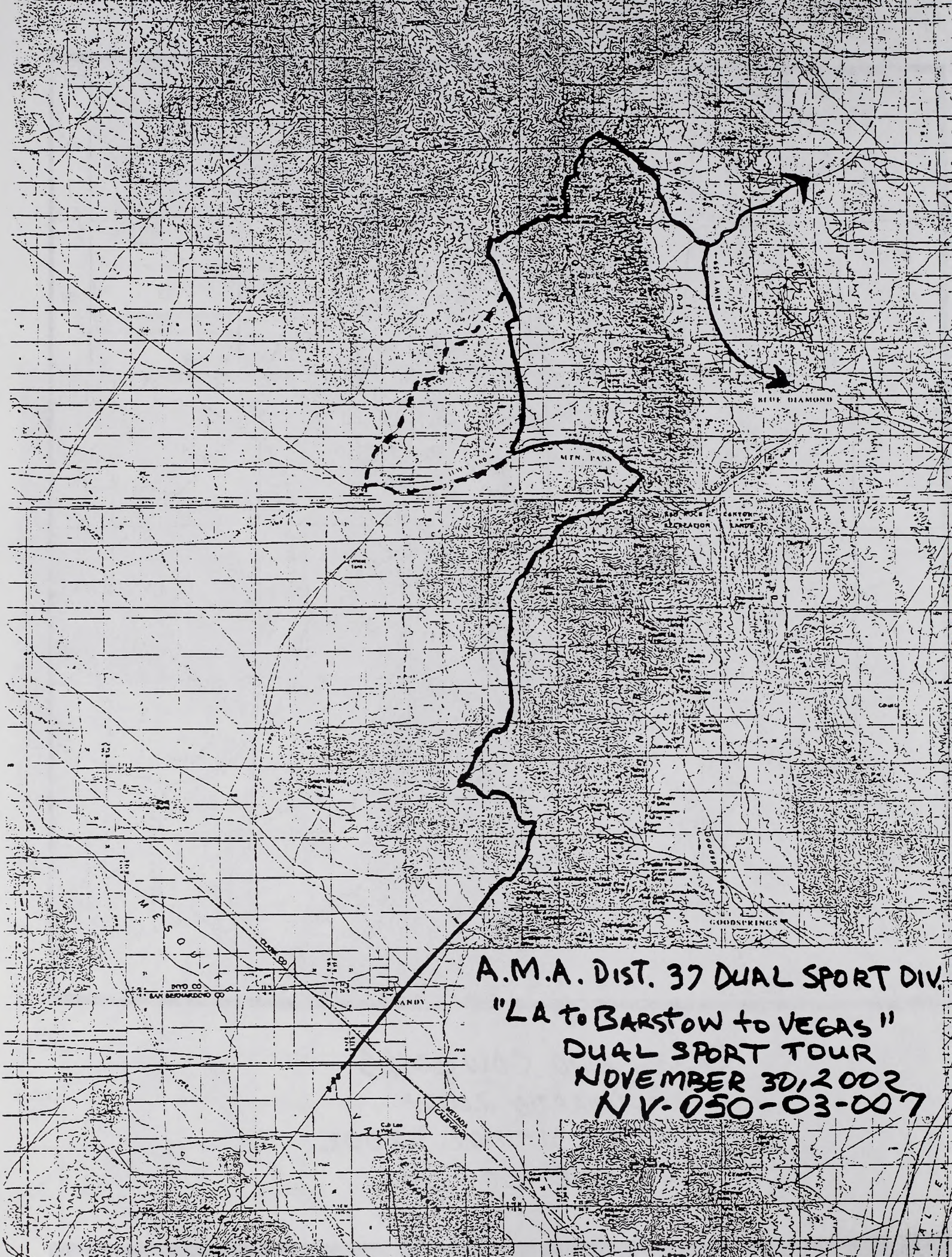
MRAN NIGHT DESERT RACE
SEPTEMBER 28, 2002
NV-050-02-043
PIT AREA
START/FINISH
POWERLINE
POWERLINE
Gravel Pits
Mountain
Sheep
Quarry
Quarry
Landing Strip
JEAN
UNION
4WD
Lake
31
36
38
1
6


POWERLINE
926
POWERLINE
1000
4WD
4WD
1350
Mountain
1000
Boat Bottle Pass
476
C-Y
1158
1000
PIT AREA
START/FINISH
POWERLINES
MRAN NIGHT DESERT RACE
AUGUST 24, 2002
NV-050-02-044
TO JEAN
I-15
Rest Area
Roach
TO PRIMM


BEST IN THE DESERT RACING ASSOCIATION
"LAS VEGAS 200"
CAR/TRUCK COURSE
MOTORCYCLE/ATV COURSE
NV-050-03001
SATURDAY DECEMBER 7, 2002
ATV/MC SPECTATOR AREA
MAIN SPECTATOR AREA
MAIN PIT AREA
START/FINISH
JEAN
Checkpoint 1
McCullough Pass
Checkpoint 2
TRUCK/CAR SPECTATOR AREA
Pit B
Pit A
Flagman
Checkpoint 3
Closed Gate
PRIMM
NEVADA
CALIFORNIA
VON SCHMIDT LINE (1873)
I-15
Hidden Valley
Jean Lake
Roach Lake

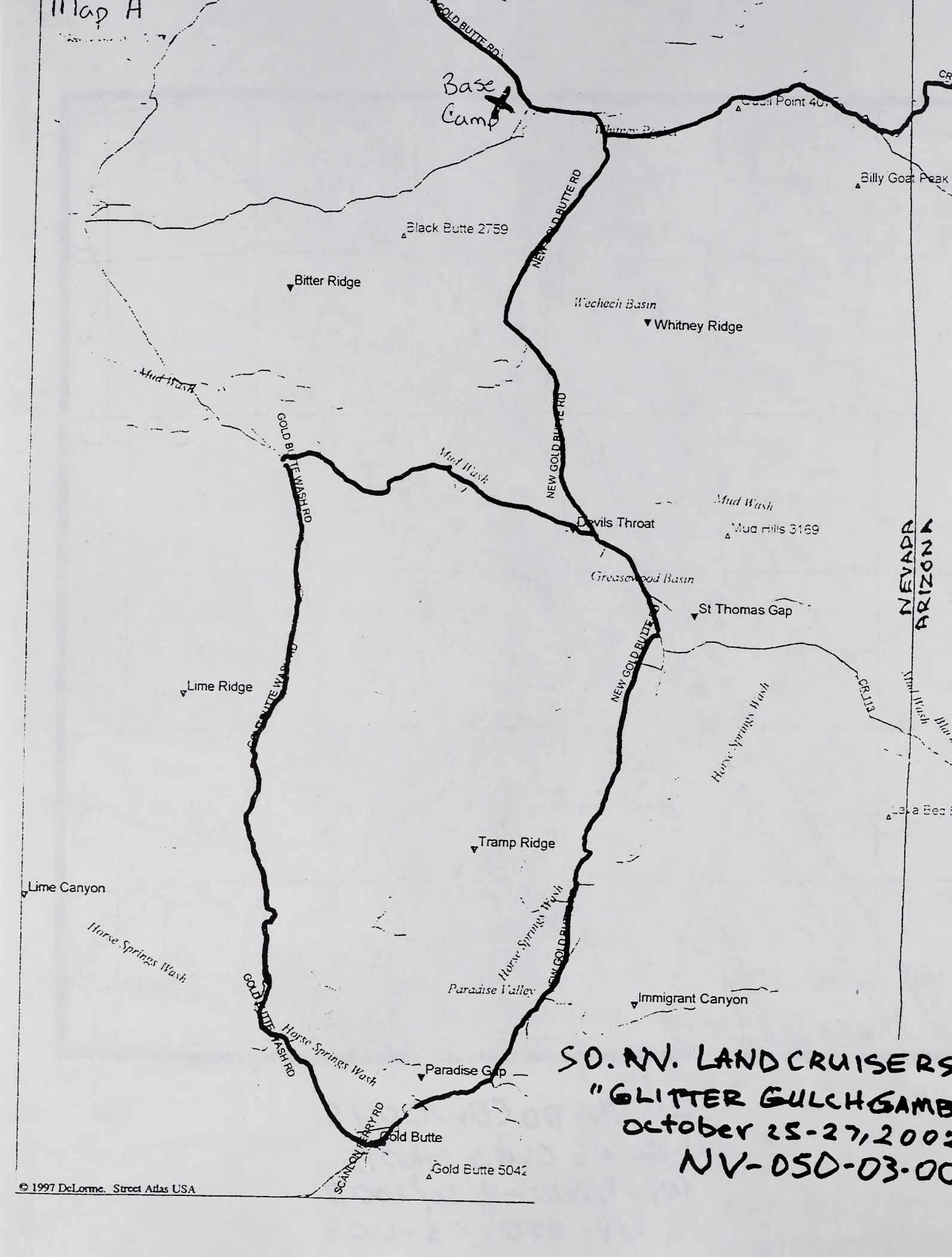


ELDORADO COWBOYS
"ELDORADO 2002"
OCTOBER 31 - NOV. 3, 2002
NV-050-03-006

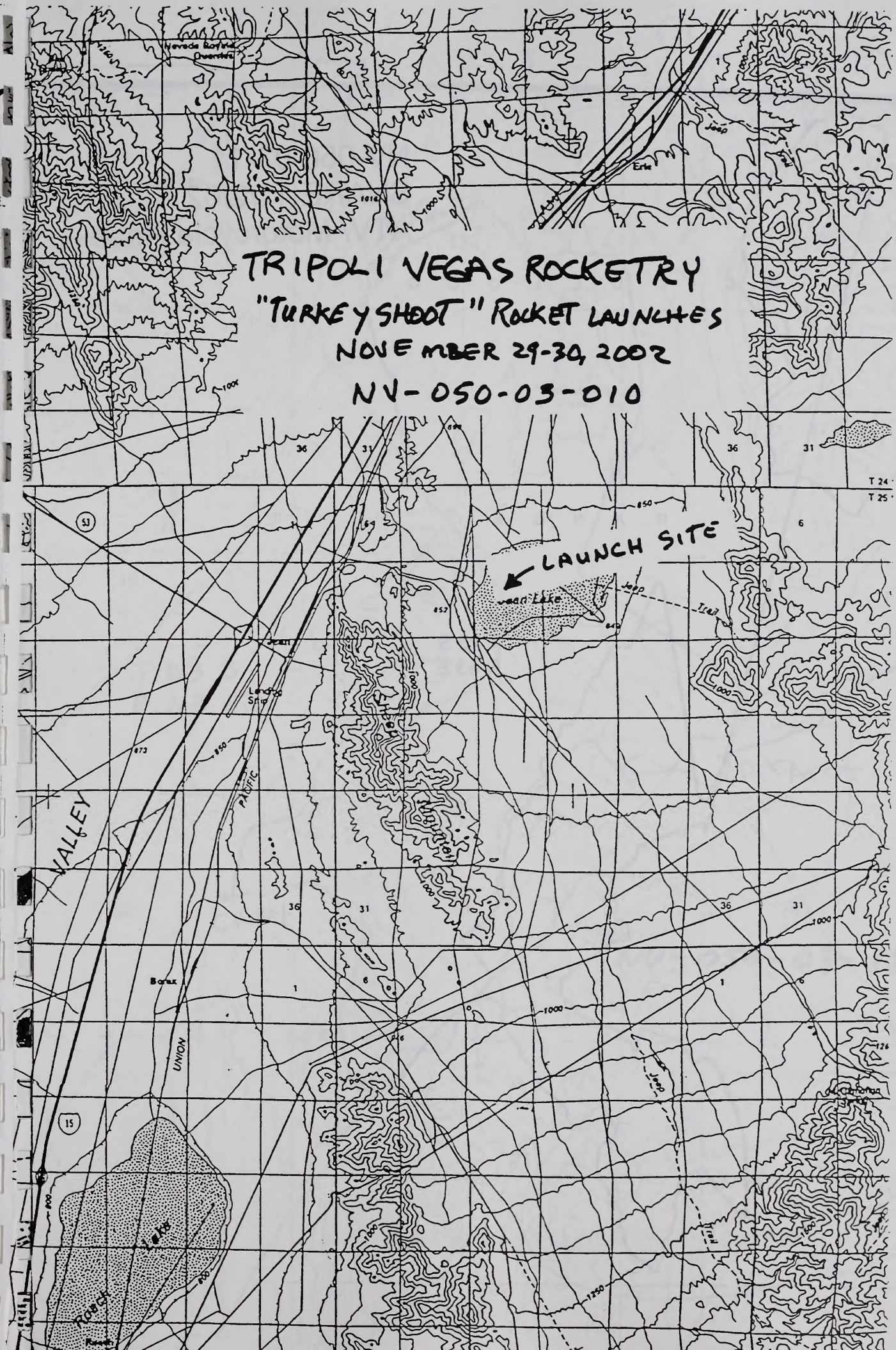

A.M.A. DIST. 37 DUAL SPORT DIV.
"LA to BARSTOW to VEGAS"
DUAL SPORT TOUR
NOVEMBER 30, 2002
NV-050-03-007

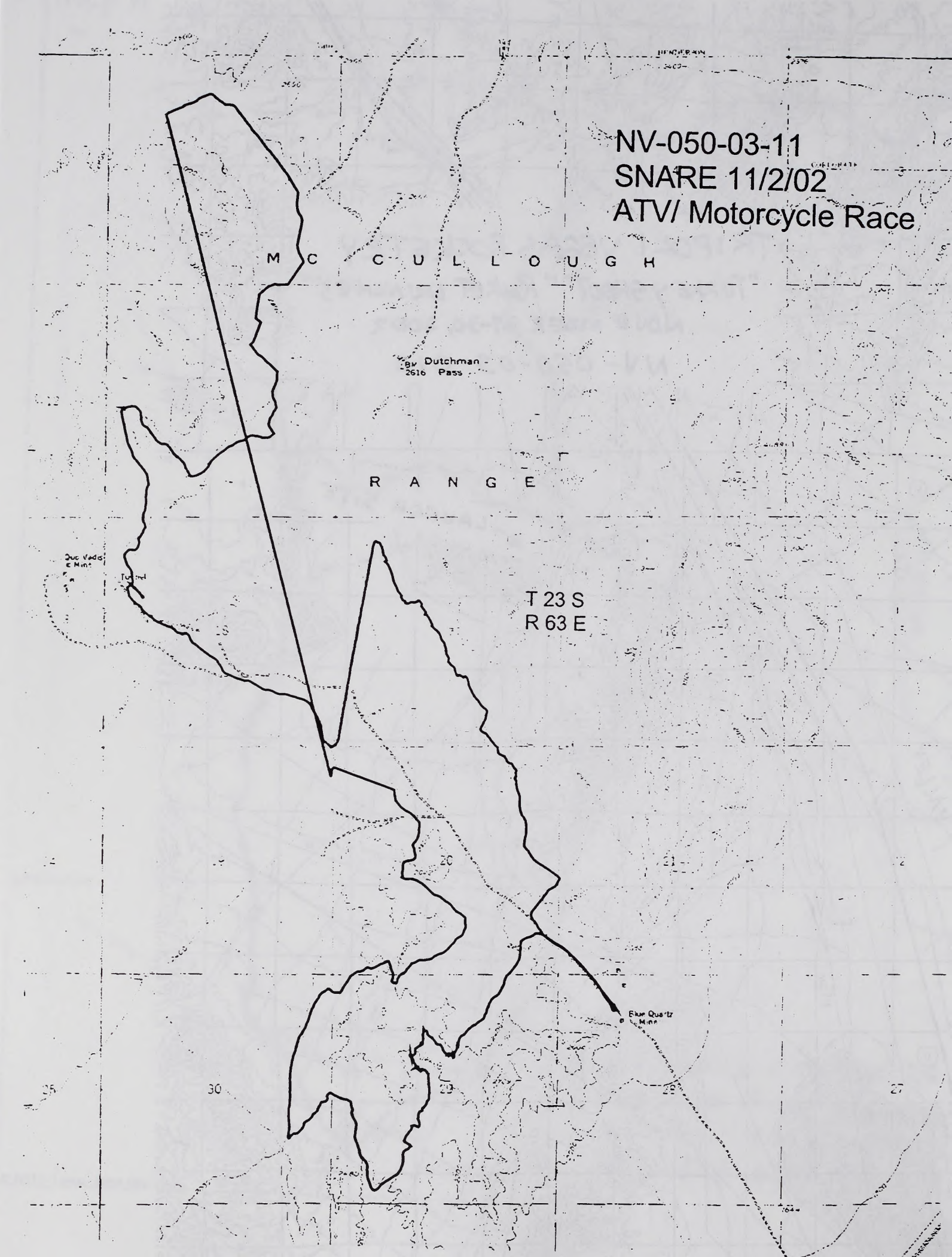


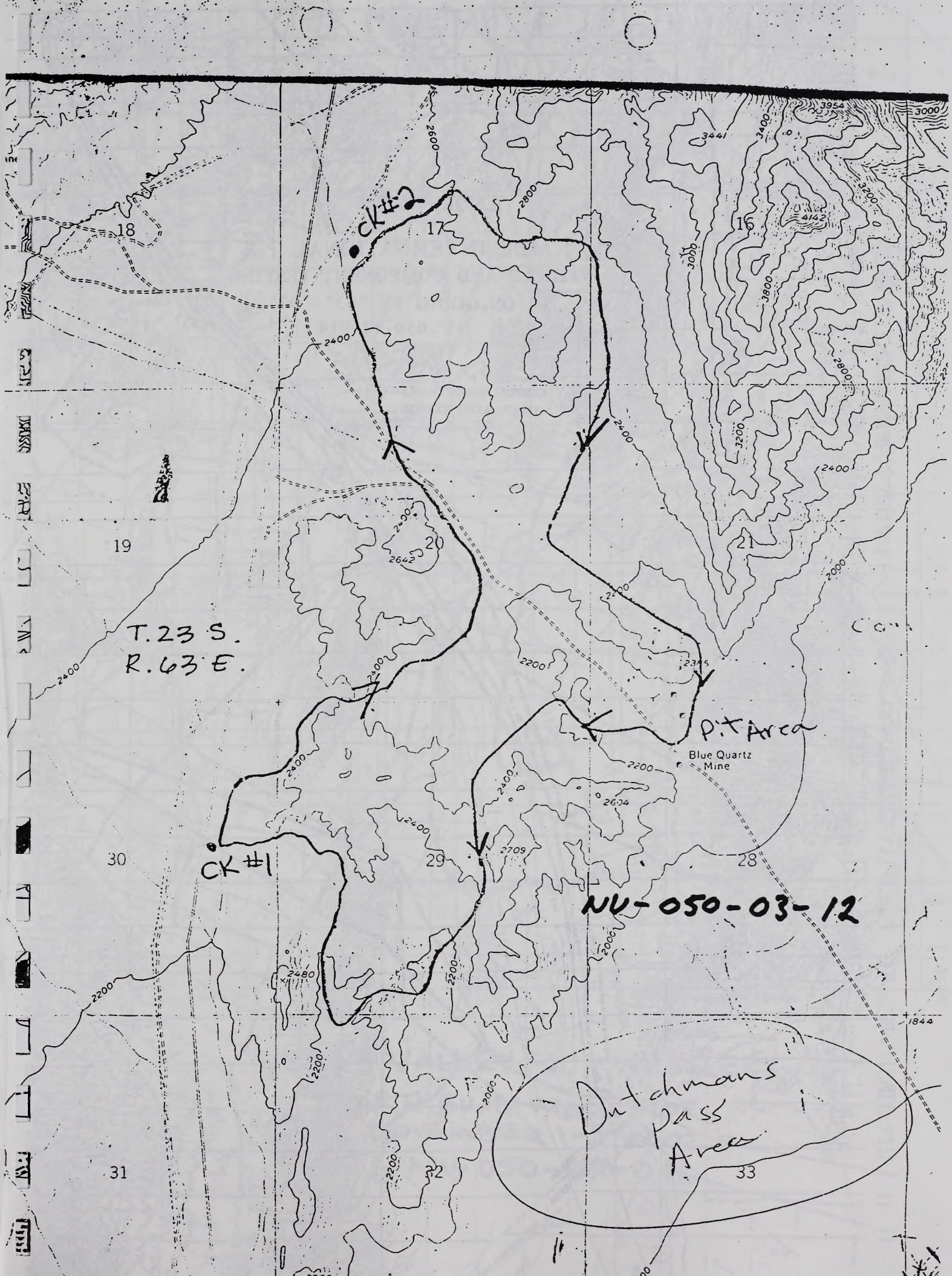
ELDORADO COWBOYS
ON-GOING CLUB SHOOTS
10/01/2002-9/30/2003
NV-050-03-008

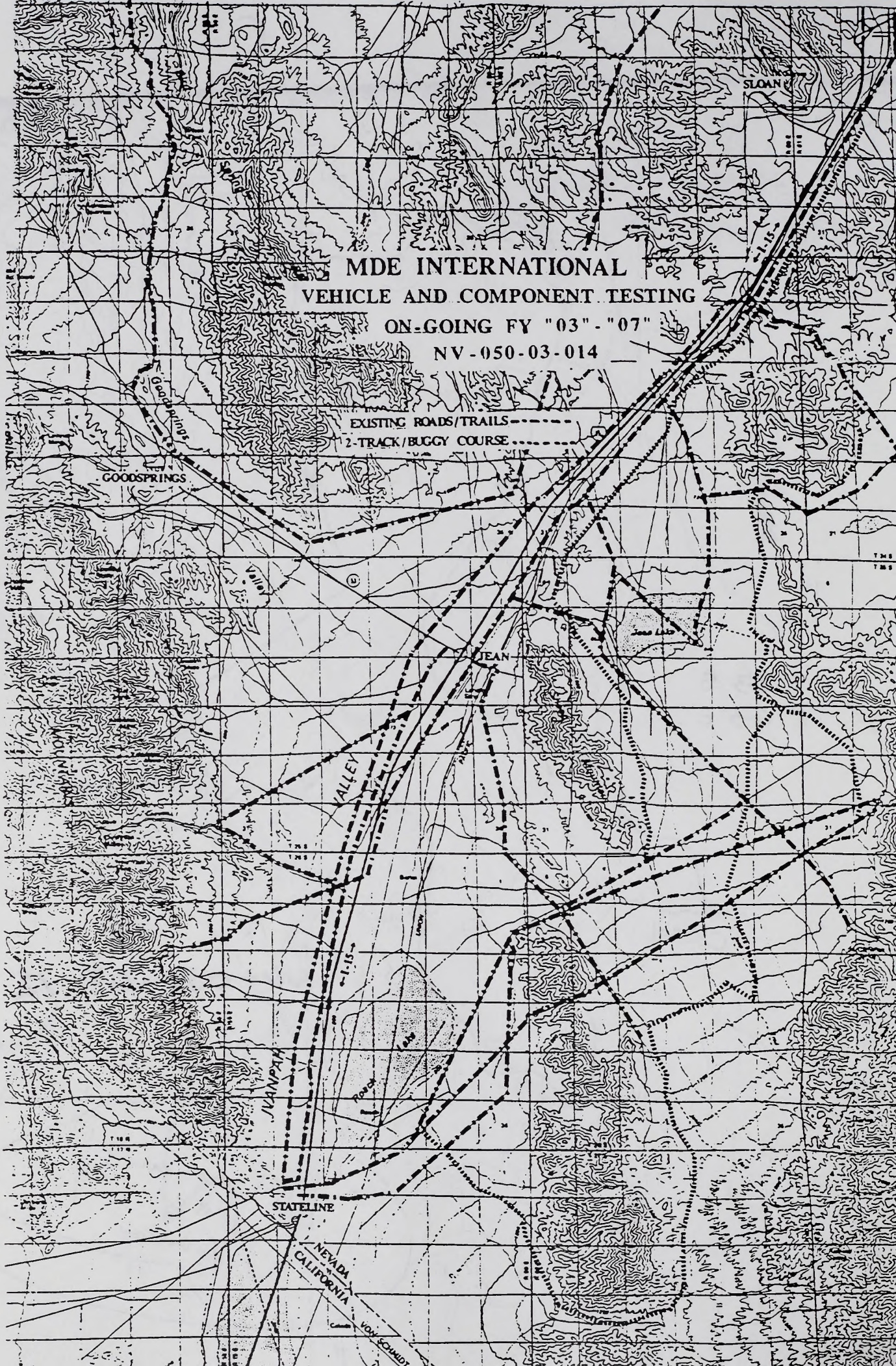


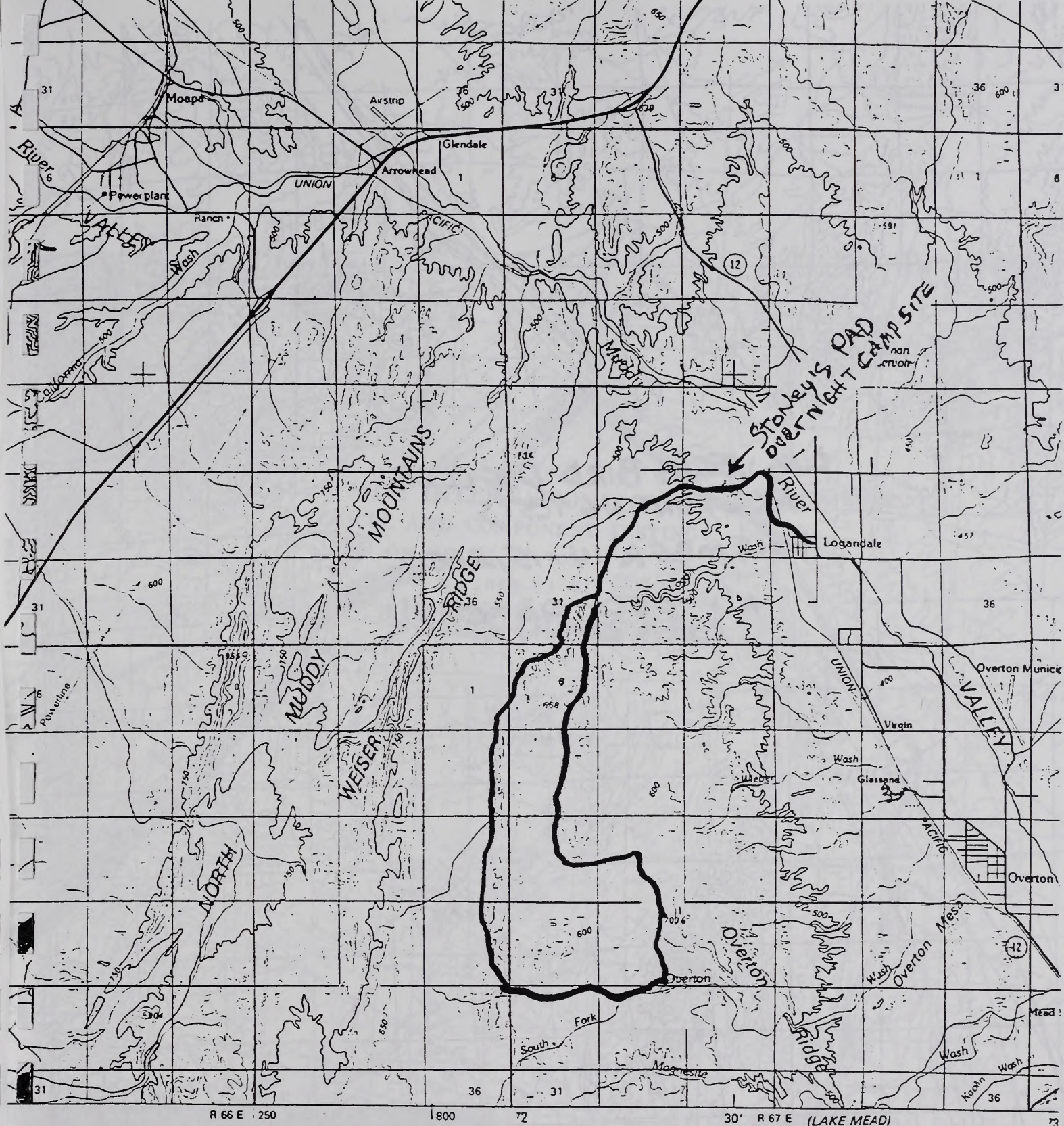
SO. NV. LAND CRUISERS
"GLITTER GULCH GAMB
October 25-27, 200
NV-050-03-00


TRIPOLI VEGAS ROCKETRY
"TURKEY SHOOT" ROCKET LAUNCHES
NOVEMBER 29-30, 2002
NV-050-03-010
LAUNCH SITE
Jeep Trail
Dead Lake
Jeep
Trail
Landing Strip
PACIFIC
UNION
VALLEY
Borax
Rocky
Road
T 24
T 25
36
31
1
6
93
15
95
1000
1050
850
873
857
842


NV-050-03-11
SNARE 11/2/02
ATV/ Motorcycle Race
M C C U L L O U G H
R A N G E
Dutchman
2616 Pass
T 23 S
R 63 E
Duc Vada
Mine
Blue Quartz
Mine


CK #2
CK #1
T. 23 S.
R. 63 E.
Pit Area
Blue Quartz Mine
NV-050-03-12
Dutchmans pass Area
16
17
18
19
20
21
28
29
30
31
32
33
3954
3441
4142
3000
3400
3200
3800
2800
2600
2400
2200
2000
2642
2345
2604
2709
2480
1844


MDE INTERNATIONAL
VEHICLE AND COMPONENT TESTING
ON-GOING FY "03" - "07"
NV-050-03-014
EXISTING ROADS/TRAILS
2-TRACK/BUGGY COURSE
SLOAN
GOODSPRINGS
JEAN
VALLEY
STATELINE
NEVADA
CALIFORNIA

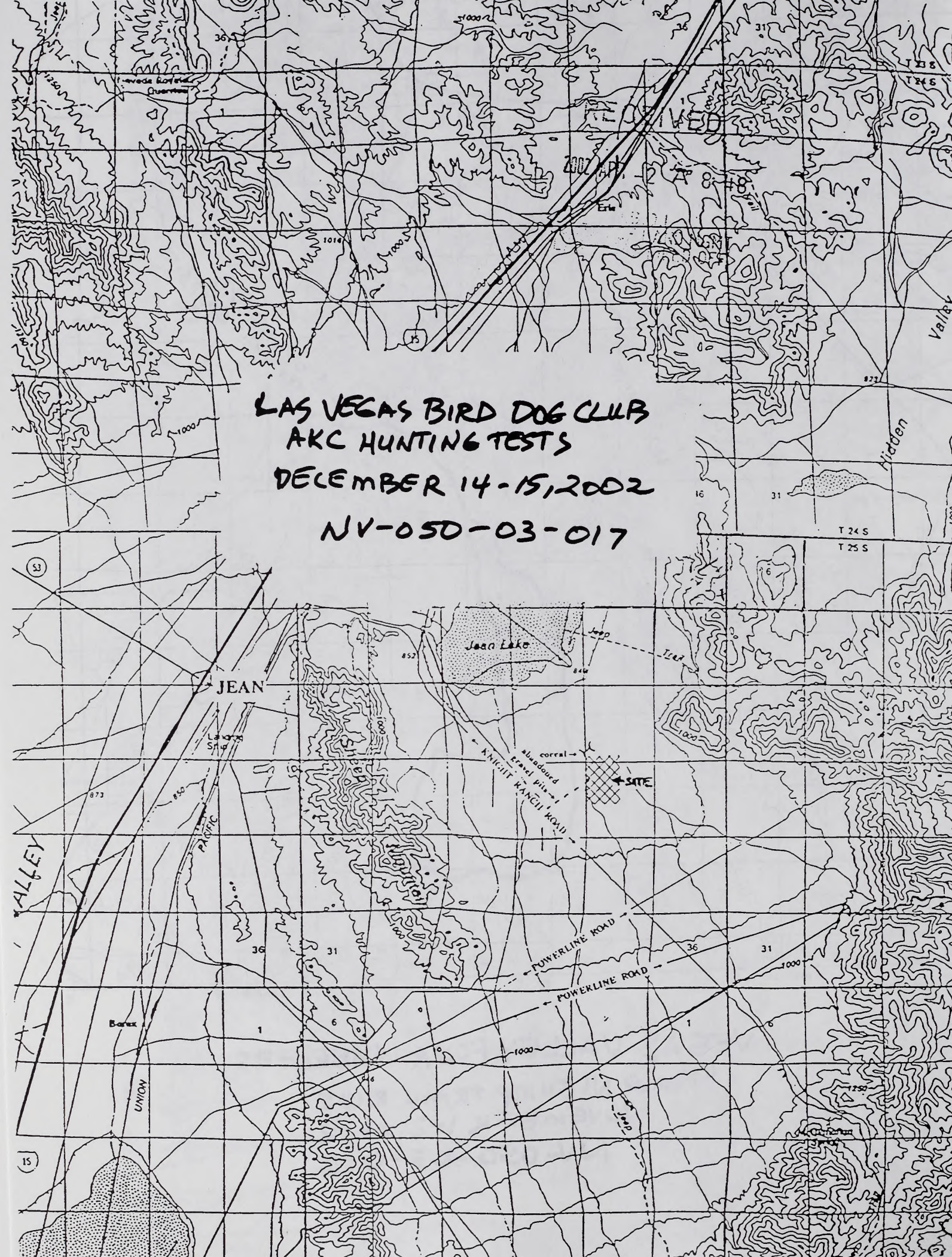


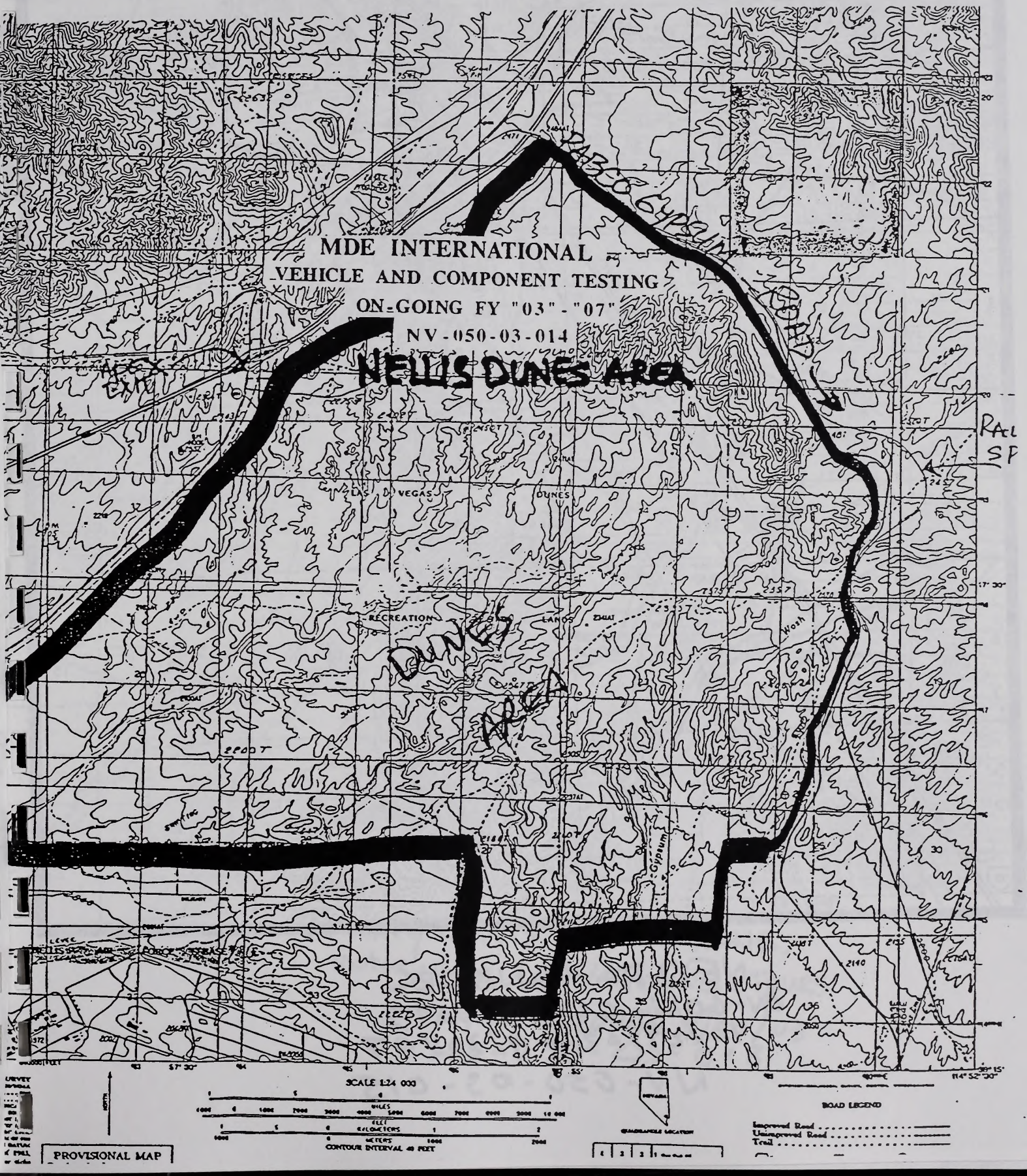
VEGAS VALLEY FOUR WHEELERS

"HUMP N' BUMP TRAIL RIDE

NOVEMBER 1-2, 2002

NV-050-03-016


LAS VEGAS BIRD DOG CLUB
AKC HUNTING TESTS
DECEMBER 14-15, 2002
NV-050-03-017
JEAN
Jean Lake
Jeep Trail
corral
abandoned gravel pits
KNIGHT RANCH ROAD
SITE
POWERLINE ROAD
POWERLINE ROAD
POWERLINE ROAD
PACIFIC
UNION
Borax
Hidden
T 24 S
T 25 S

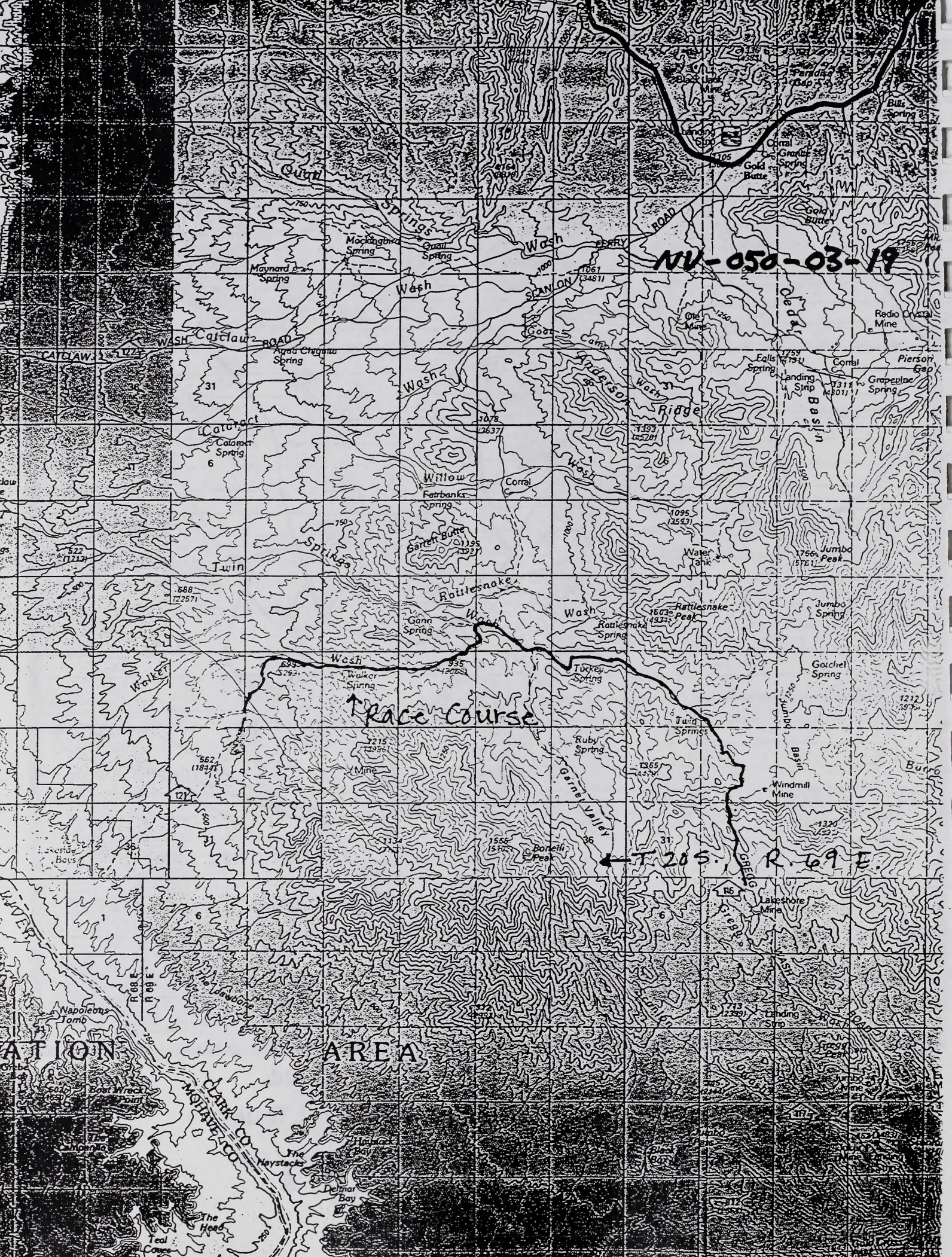

MDE INTERNATIONAL
VEHICLE AND COMPONENT TESTING
ON-GOING FY "03" - "07"
NV-050-03-014
NELLIS DUNES AREA
DUNES AREA
LAS VEGAS
DUNES
RECREATION
LANDS
Wash
Gypsum
SCALE 1:24 000
CONTOUR INTERVAL 40 FEET
ROAD LEGEND
Improved Road
Unimproved Road
Trail
PROVISIONAL MAP

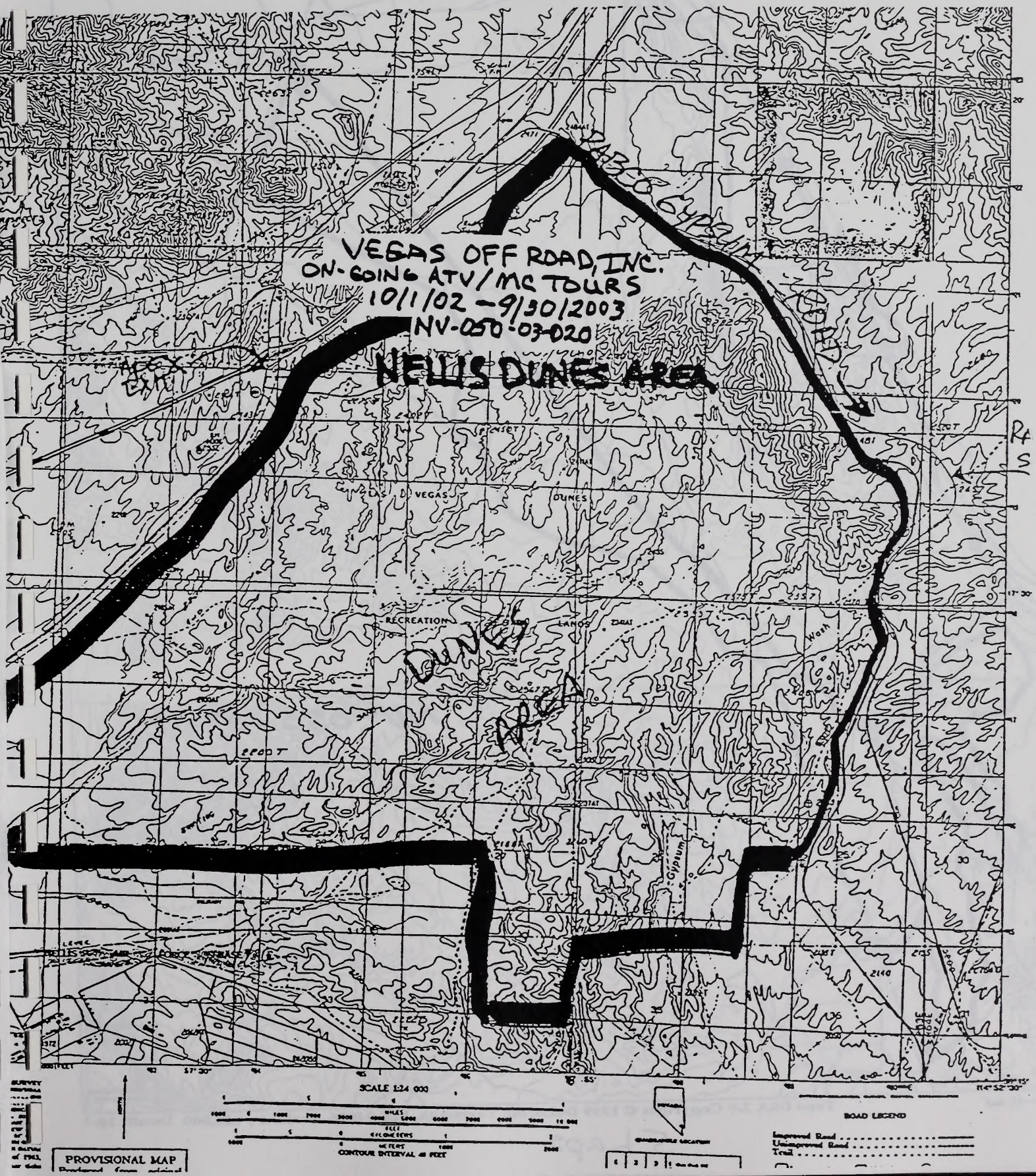


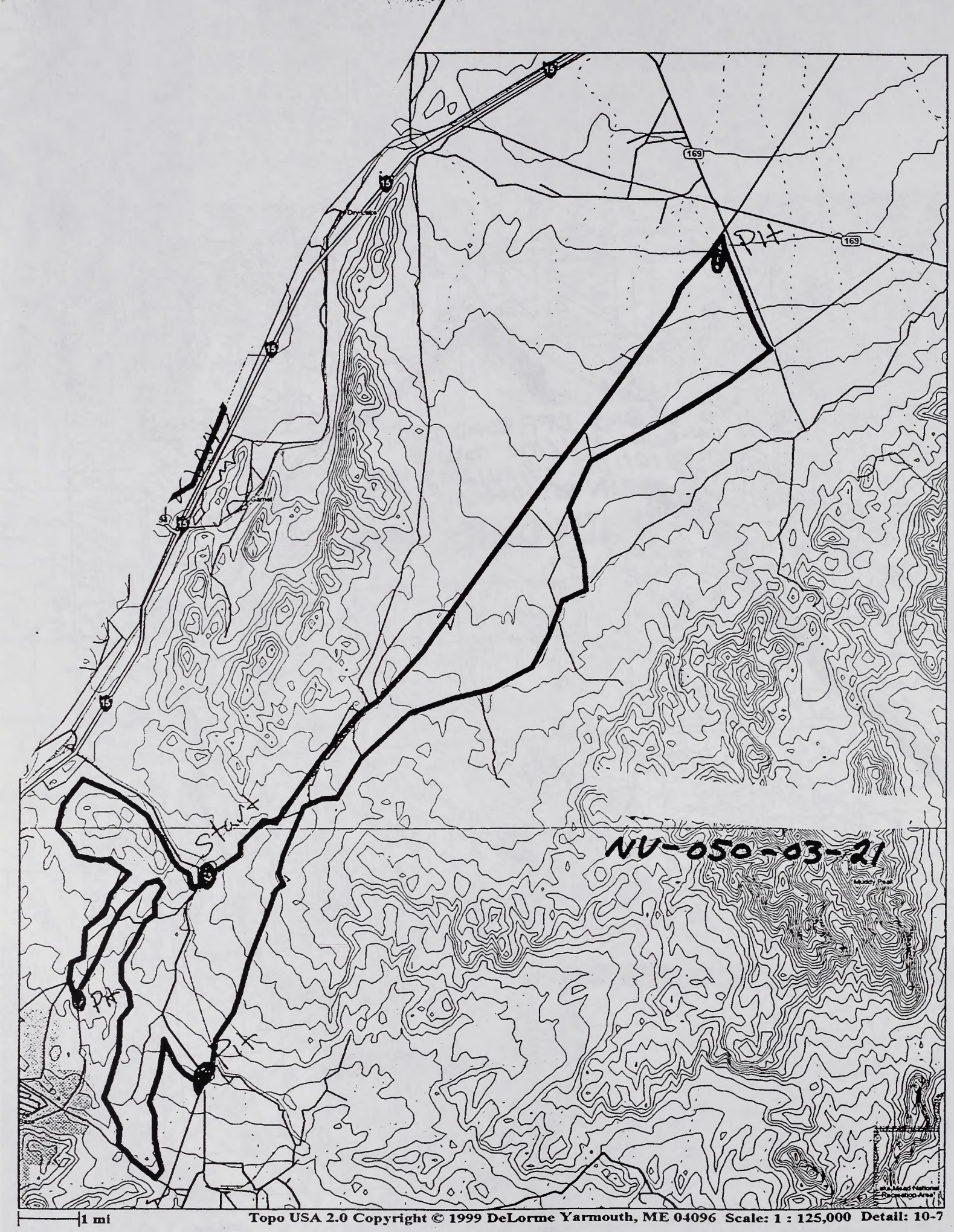
NEVADA RANGERS
ON-GOING CLUB SHOOTS
10/27/02 — 9/30/07
NV-050-03-015



JIMMY LEWIS RACING, INC.
MOTORCYCLE / ATV TRAINING & TOURS
10/01/02 Through 9/30/03
NV-050-03-018


NV-050-03-19
Trace Course
T 20 S., R. 69 E.
Quail Springs Wash
Mockingbird Spring
Quail Spring
Maynard Spring
Wash
Catclaw Wash
Agua Chiquita Spring
Cataract Spring
Willow Wash
Fairbanks Spring
Corral
Garden Butte
Twin Springs
Rattlesnake Wash
Gonn Spring
Walker Wash
Walker Spring
Turkey Spring
Ruby Spring
Twin Springs
Gotchel Spring
Jumbo Spring
Rattlesnake Spring
Rattlesnake Peak
Jumbo Peak
Water Tank
Windmill Mine
Lakeshore Mine
Gregg Basin
Gregg Wash
Landing Strip
Bonelli Peak
Goat Camp
Anderson Wash
Ridge
Basin
Pierson Gap
Grapevine Spring
Falls Spring
Radio Crystal Mine
Gold Butte
Corral Granite Spring
Bills Spring
Parida Gap
Lakeside Bays
Wapoleons Tomb
Boat Wreck Point
The Haystacks
The Head
Teal Cove
Delmar Bay
Hawkeye Bay
Black Bay
MOJAVE CO.
CLARK CO.
ATION AREA

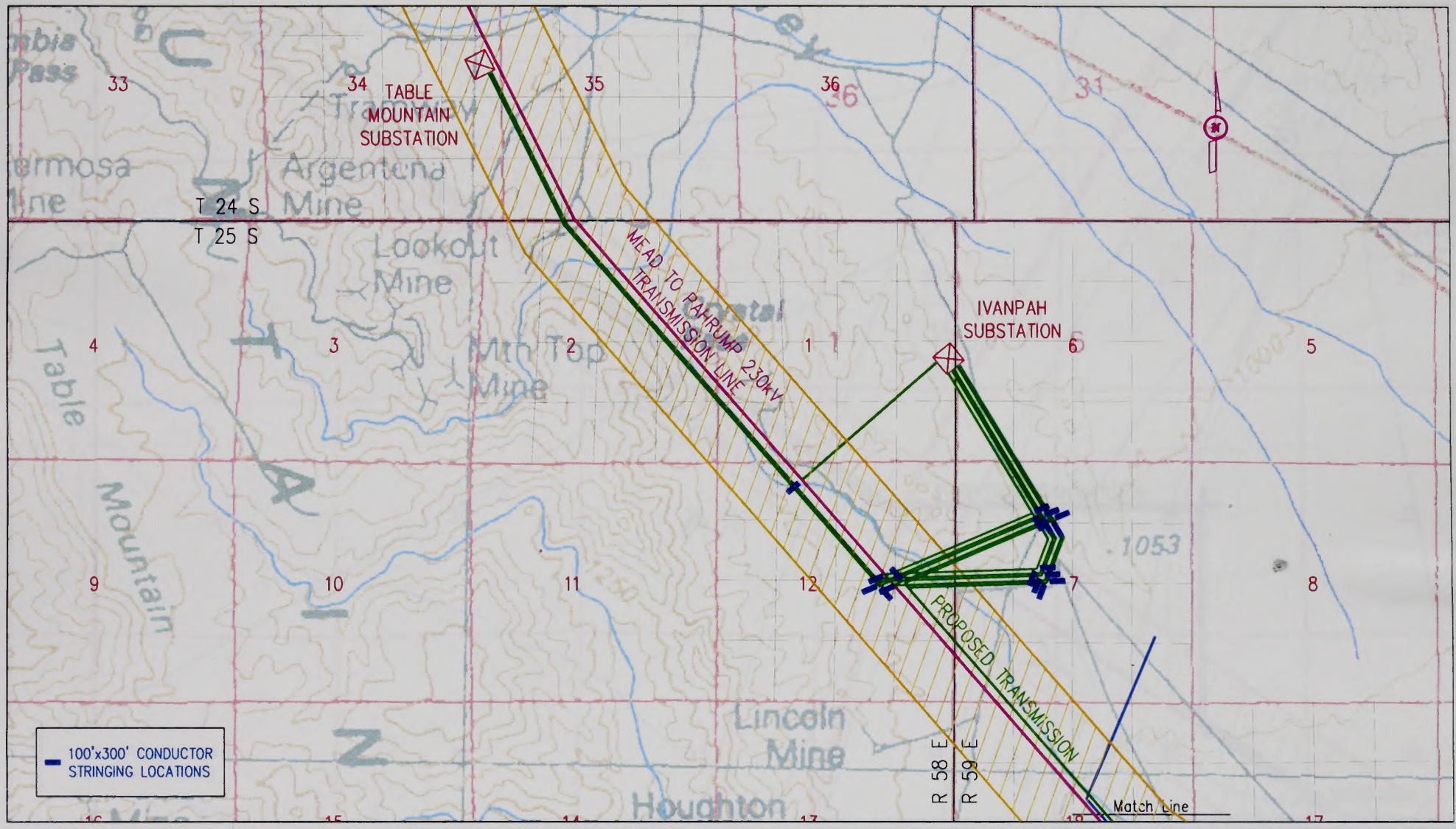

VEGAS OFF ROAD, INC.
ON-GOING ATV/MC TOURS
10/1/02 - 9/30/2003
NV-050-03-020
NELLIS DUNES AREA
DUNES AREA
LAS VEGAS DUNES
RECREATION
Gypsum
SCALE 1:24 000
PROVISIONAL MAP
ROAD LEGEND
Improved Road
Unimproved Road
Trail


15
169
PH
NV-050-03-21
Muddy Peak
Lake Mead National Recreation Area
1 mi
Topo USA 2.0 Copyright © 1999 DeLorme Yarmouth, ME 04096 Scale: 1 : 125,000 Detail: 10-7

5 Laps

BLM LIBRARY
BLDG 50, ST-160A
DENVER FEDERAL CENTER
P.O. BOX 25047
DENVER, COLORADO 80225

APPENDIX H
TRANSMISSION LINE ALIGNMENT SHEETS



ELECTRICAL CONSULTANTS, INC.

NO	REVISION	DATE	BY	APR
2	REVISED TO SHOW APPROXIMATE CONDUCTOR STRINGING LOCATIONS	6-07-02	GLG	DJA
1	REVISED LINE ROUTING BASED UPON FIELD SURVEY	5-29-02	DMB	DJA

VALLEY ELECTRIC ASSOCIATION
PAHRUMP, NEVADA

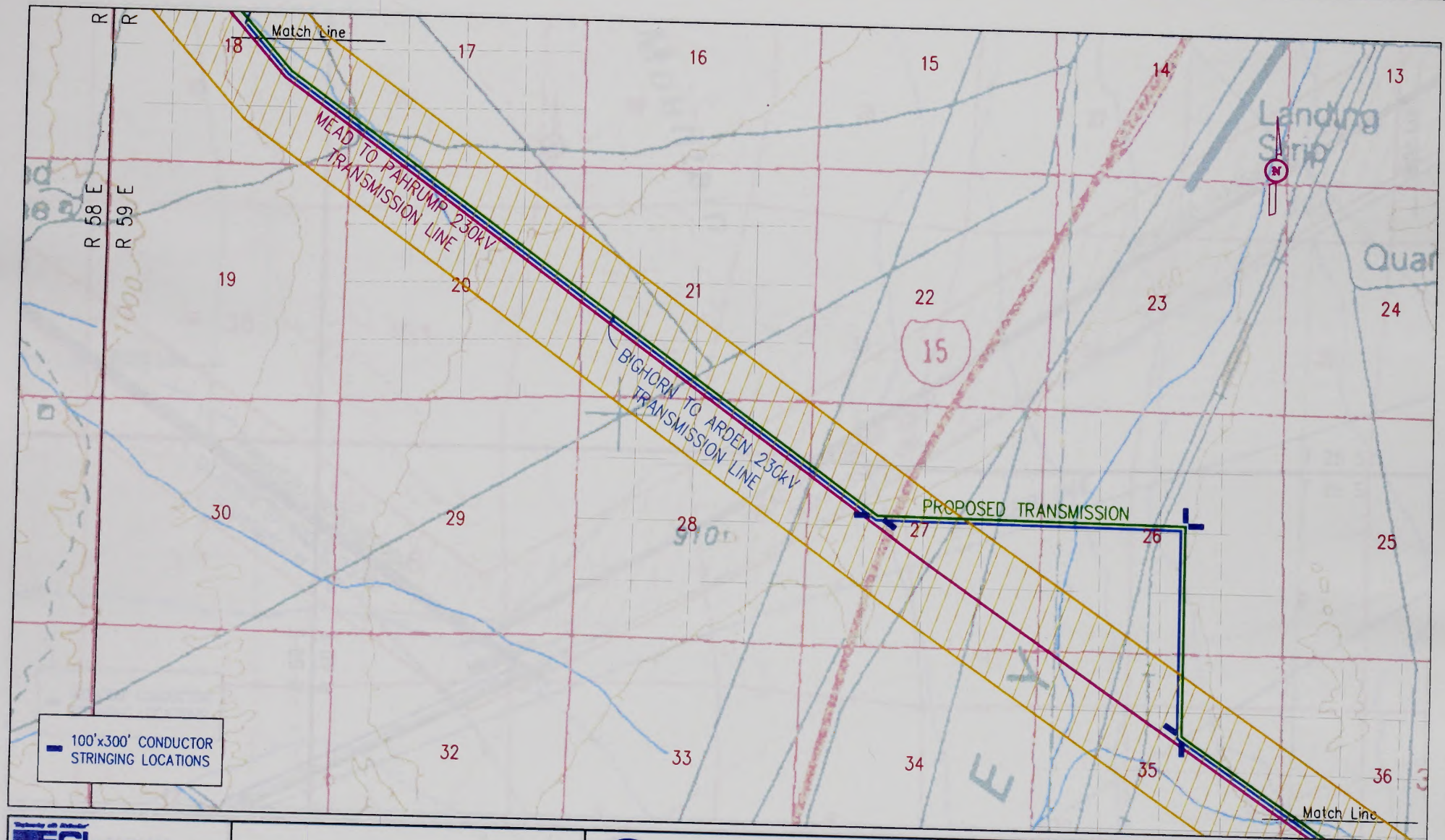
ENGINEERING RECORD		DATE
DRAWN	GLG	11-5-01
DESIGNED	DJA	11-1-01
CHECKED		
APPROVED		

ORG SCALE: 1"=2000' PLT SCALE: 1:1

IVANPAH TO MEAD
230kV TRANSMISSION PROJECT
Exhibit Map #1

FILE NO : 1028M001 18-8-M001 REVISION NO : 2





ELECTRICAL CONSULTANTS, INC

NO	REVISION	DATE	BY	APR
2	REVISED TO SHOW APPROXIMATE CONDUCTOR STRINGING LOCATIONS	6-07-02	GLG	DJA
1	REVISED LINE ROUTING BASED UPON FIELD SURVEY	5-29-02	DMB	DJA

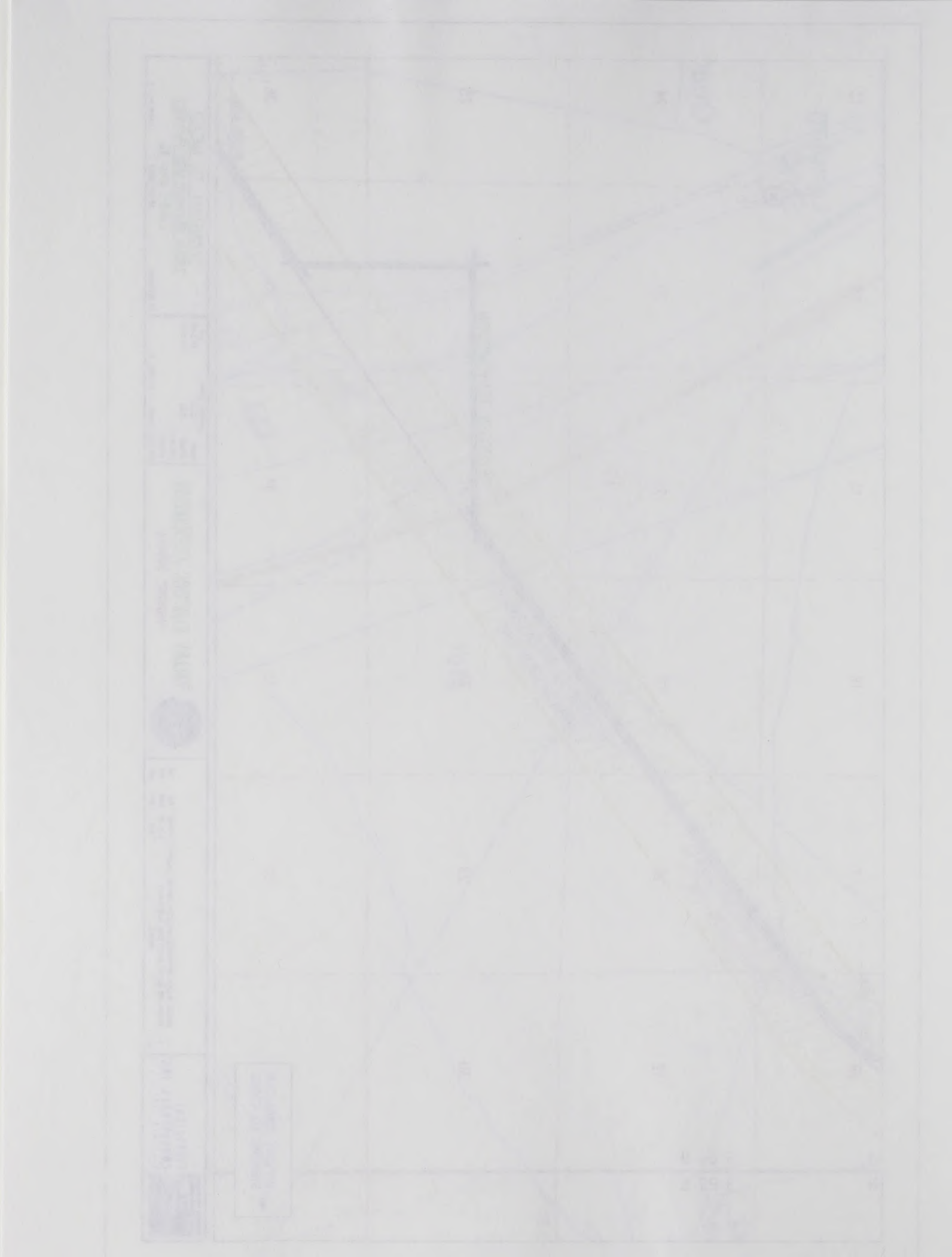
VALLEY ELECTRIC ASSOCIATION
PAHRUMP, NEVADA

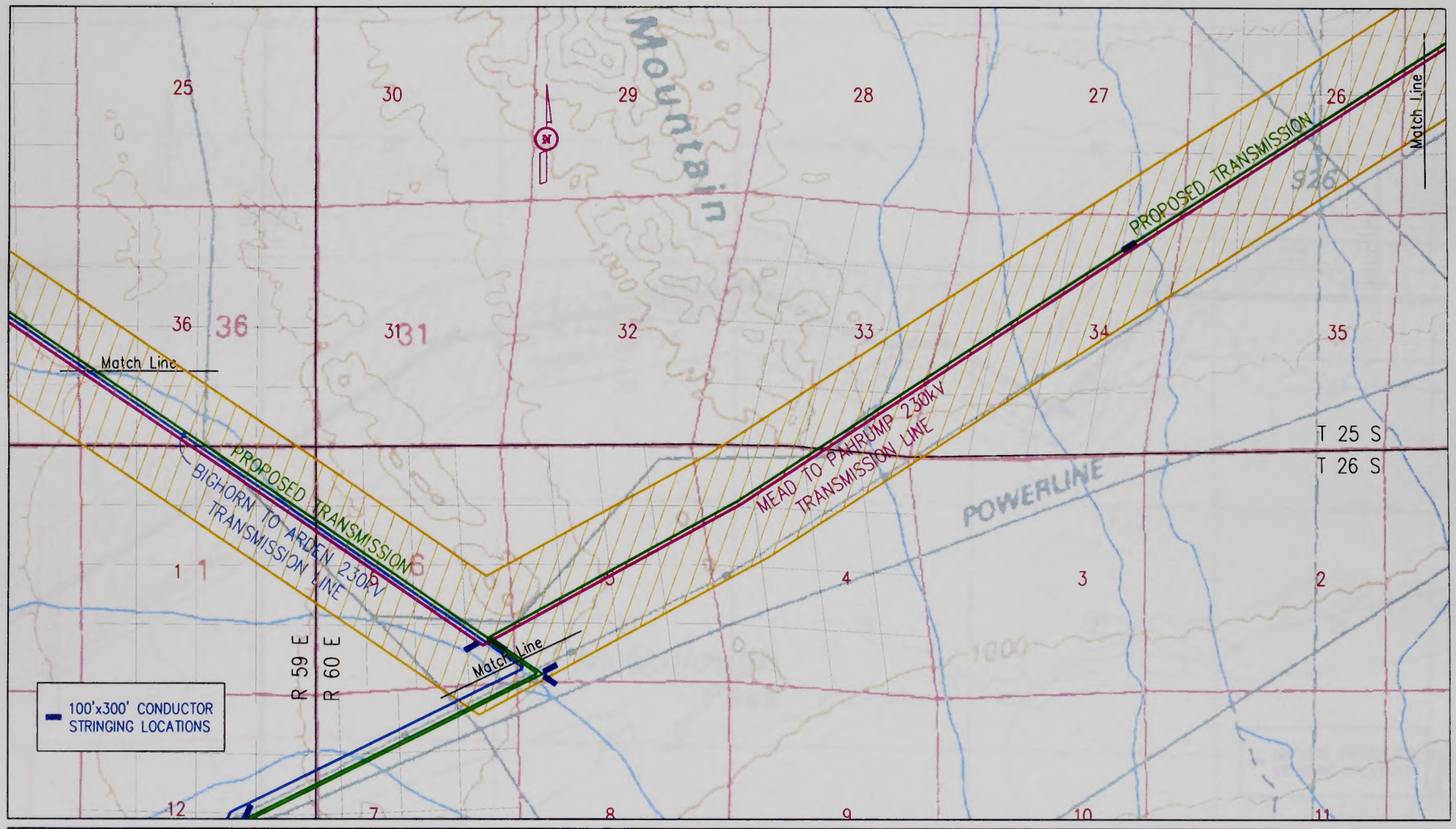
ENGINEERING RECORD		DATE
DRAWN	GLC	11-5-01
DESIGNED	DJA	11-1-01
CHECKED		
APPROVED		

DWG SCALE: 1"=2000' PLT SCALE: 1:1

IVANPAH TO MEAD
230kV TRANSMISSION PROJECT
Exhibit Map #2

FILE NO : 1888M002 18-8-M002 REVISION NO : 2





ELECTRICAL CONSULTANTS, INC

NO	REVISION	DATE	BY	APR
2	REVISED TO SHOW APPROXIMATE CONDUCTOR STRINGING LOCATIONS	6-07-02	GLG	DJA
1	REVISED LINE ROUTING BASED UPON FIELD SURVEY	5-29-02	DMB	DJA

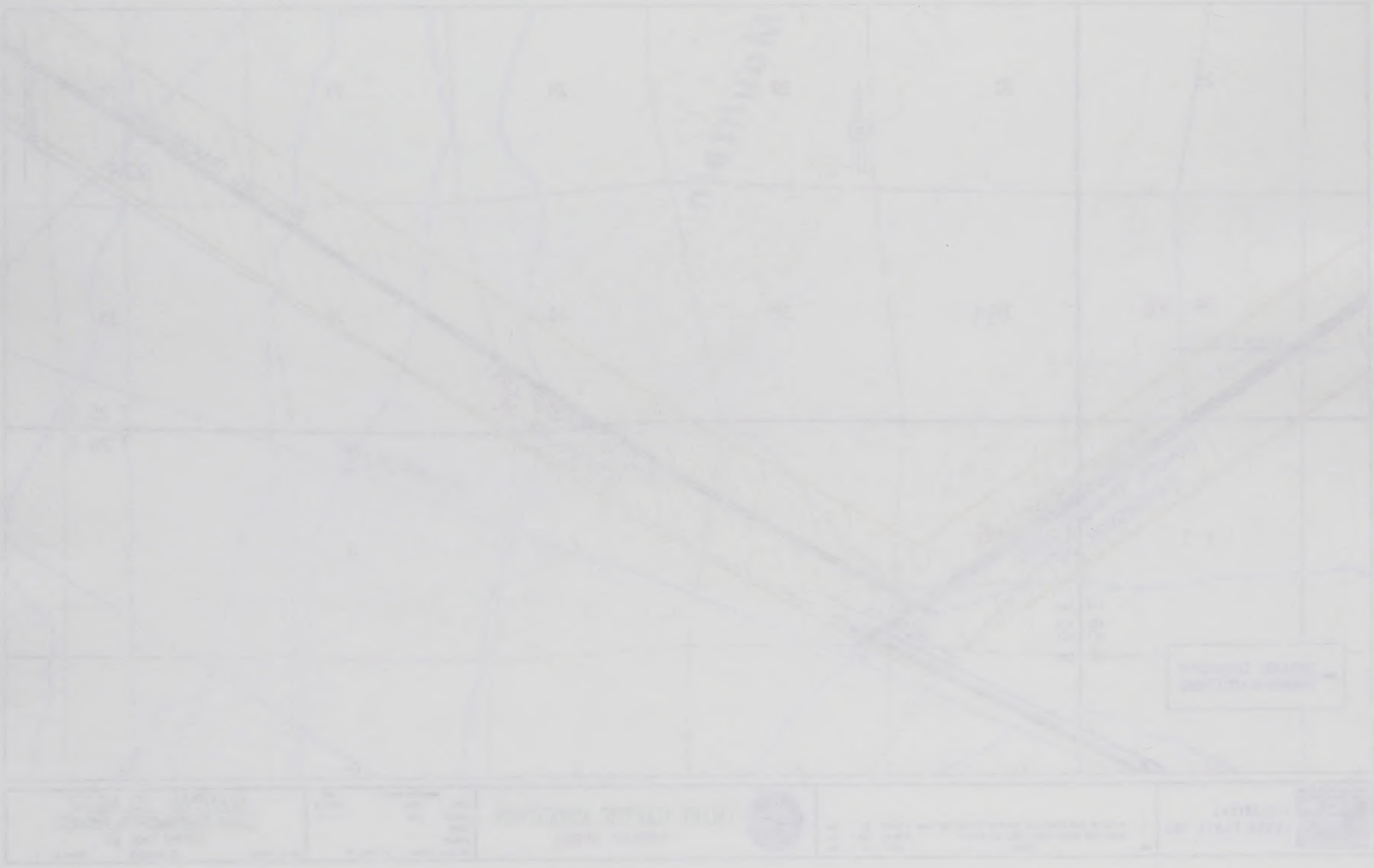
VALLEY ELECTRIC ASSOCIATION
PAHRUMP, NEVADA

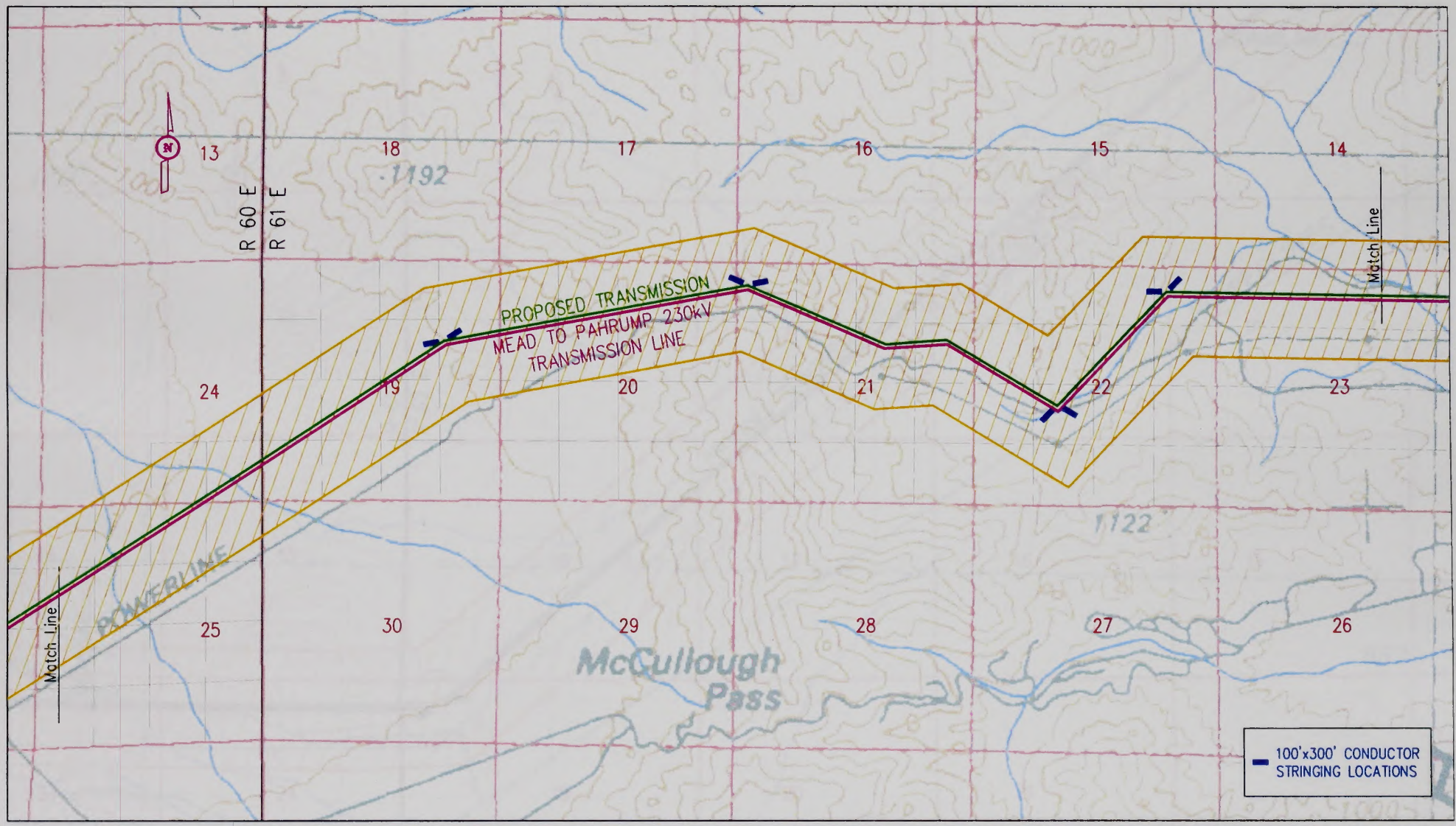
ENGINEERING RECORD		DATE
DRAWN	GLC	11-5-01
DESIGNED	DJA	11-1-01
CHECKED		
APPROVED		

DWG SCALE: 1"=2000' PLT SCALE: 1:1

IVANPAH TO MEAD
230kV TRANSMISSION PROJECT
Exhibit Map #3

FILE NO : 188M003 18-8-M003 REVISION NO : 2





ECI ELECTRICAL CONSULTANTS, INC

NO	REVISION	DATE	BY	APR
2	REVISED TO SHOW APPROXIMATE CONDUCTOR STRINGING LOCATIONS	6-07-02	GLG	DJA
1	REVISED LINE ROUTING BASED UPON FIELD SURVEY	5-29-02	DMB	DJA

VALLEY ELECTRIC ASSOCIATION
PAHRUMP, NEVADA

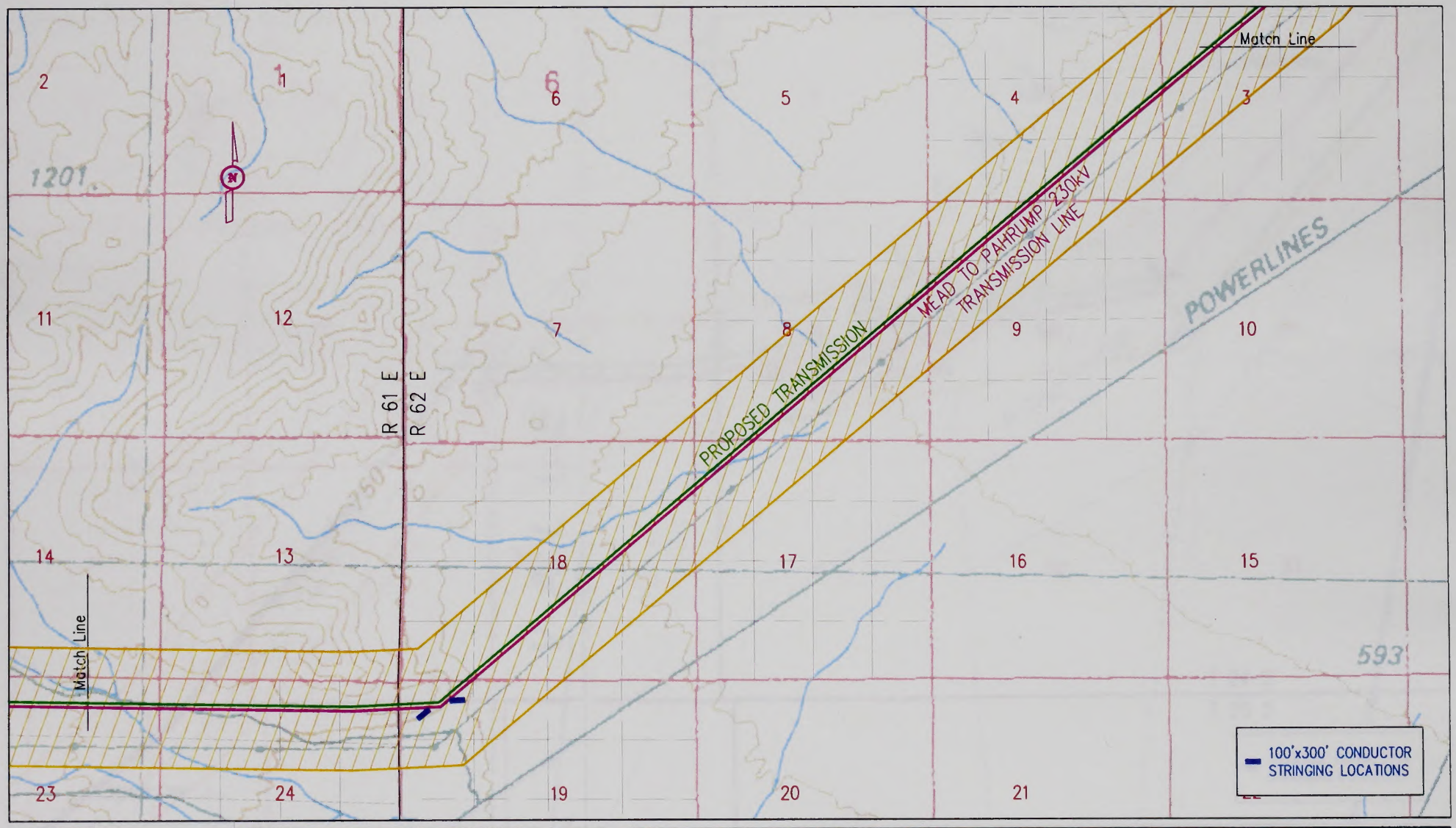
ENGINEERING RECORD		DATE
DRAWN	GLC	11-5-01
DESIGNED	DJA	11-1-01
CHECKED		
APPROVED		

DWG SCALE: 1"=2000' PLT SCALE: 1:1

IVANPAH TO MEAD
230kV TRANSMISSION PROJECT
Exhibit Map #4

FILE NO : 1689M004 18-B-M004 REVISION NO : 2





ELECTRICAL CONSULTANTS, INC

NO	REVISION	DATE	BY	APR
2	REVISED TO SHOW APPROXIMATE CONDUCTOR STRINGING LOCATIONS	6-07-02	CLC	DJA
1	REVISED LINE ROUTING BASED UPON FIELD SURVEY	5-29-02	DMB	DJA

VALLEY ELECTRIC ASSOCIATION
PAHRUMP, NEVADA

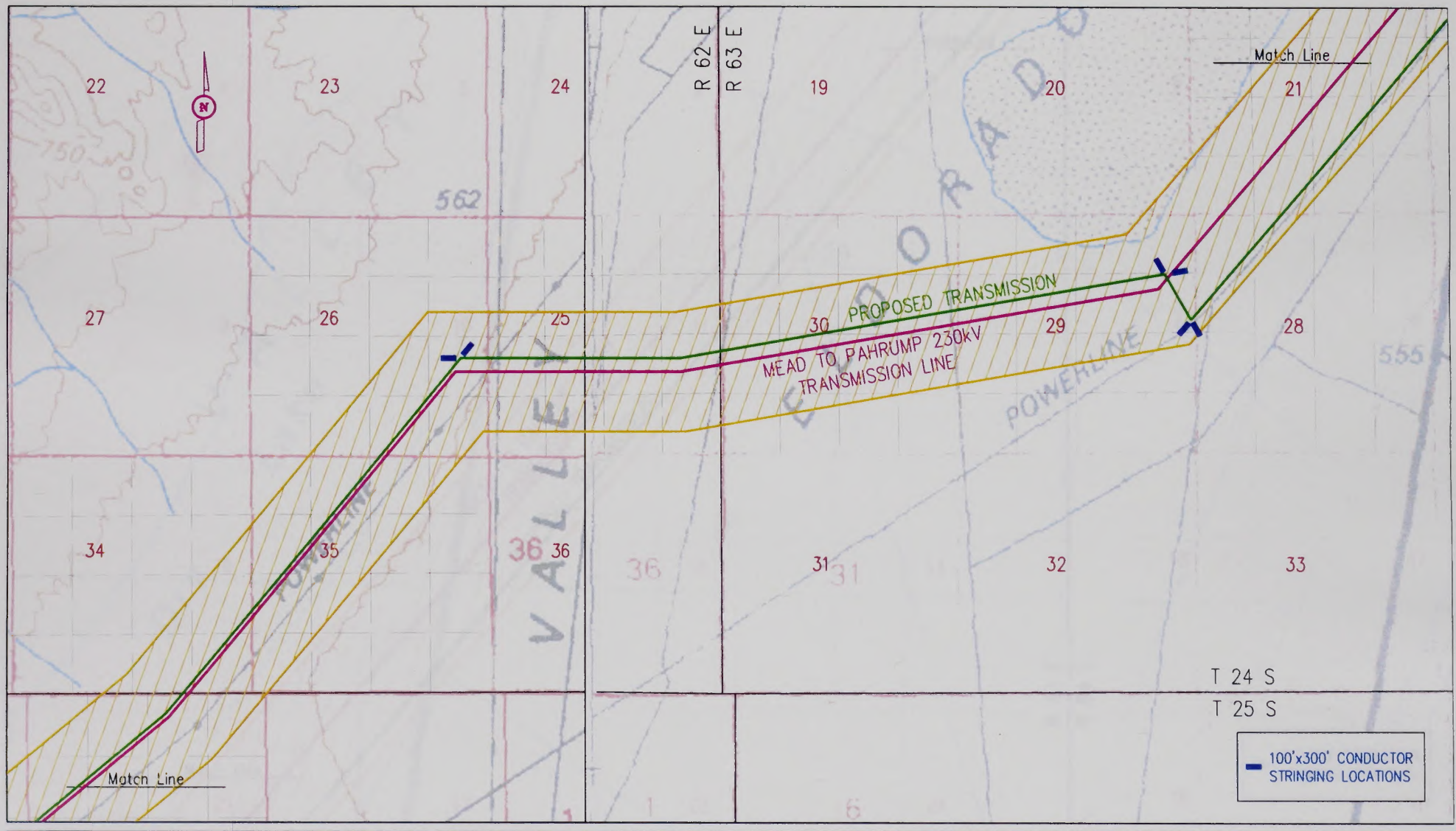
ENGINEERING RECORD		DATE
DRAWN	CLC	11-5-01
DESIGNED	DJA	11-1-01
CHECKED		
APPROVED		

DWG SCALE: 1"=2000' PLT SCALE: 1:1

IVANPAH TO MEAD
230kV TRANSMISSION PROJECT
Exhibit Map #5

FILE NO : 18BM005 18-B-M005 REVISION NO : 2





ELECTRICAL CONSULTANTS, INC.

NO	REVISION	DATE	BY	APR
2	REVISED TO SHOW APPROXIMATE CONDUCTOR STRINGING LOCATIONS	6-07-02	GLG	DJA
1	REVISED LINE ROUTING BASED UPON FIELD SURVEY	5-29-02	DMB	DJA

VALLEY ELECTRIC ASSOCIATION
PAHRUMP, NEVADA

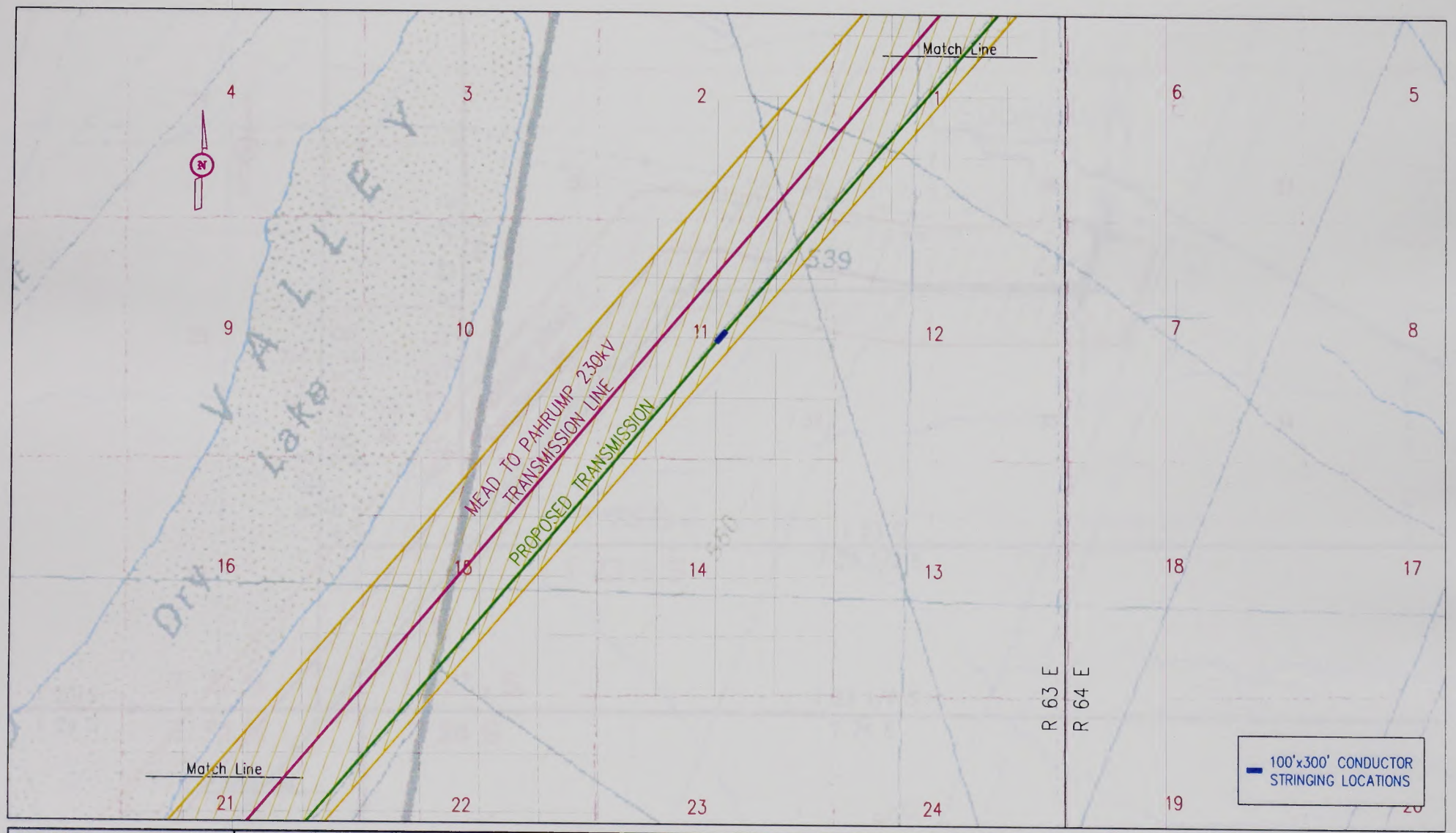
ENGINEERING RECORD		DATE
DRAWN	GLC	11-5-01
DESIGNED	DJA	11-1-01
CHECKED		
APPROVED		

DWG SCALE: 1"=2000' PLT SCALE: 1:1

IVANPAH TO MEAD
230kV TRANSMISSION PROJECT
Exhibit Map #6

FILE NO : 18MM006 18-8-M006 REVISION NO : 2





ELECTRICAL CONSULTANTS, INC

NO	REVISION	DATE	BY	APR
2	REVISED TO SHOW APPROXIMATE CONDUCTOR STRINGING LOCATIONS	6-07-02	GLC	DJA
1	REVISED LINE ROUTING BASED UPON FIELD SURVEY	5-29-02	DMB	DJA

VALLEY ELECTRIC ASSOCIATION
PAHRUMP, NEVADA

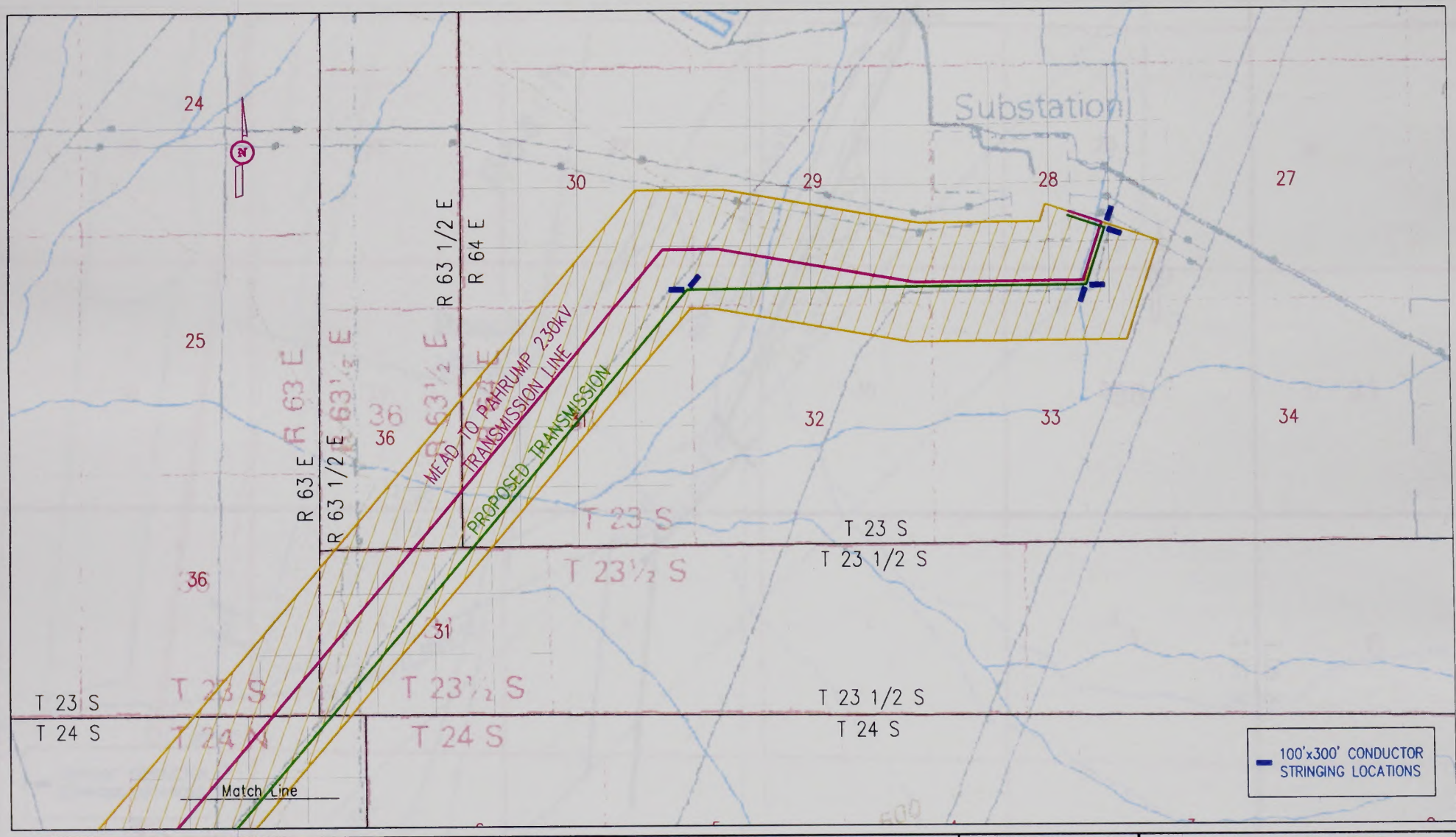
ENGINEERING RECORD		DATE
DRAWN	GLC	11-5-01
DESIGNED	DJA	11-1-01
CHECKED		
APPROVED		

DWG SCALE: 1"=2000' PLT SCALE: 1:1

IVANPAH TO MEAD
230kV TRANSMISSION PROJECT
Exhibit Map #7

FILE NO : 18BM007 18-B-M007 REVISION NO : 2





ELECTRICAL CONSULTANTS, INC

NO	REVISION	DATE	BY	APR
2	REVISED TO SHOW APPROXIMATE CONDUCTOR STRINGING LOCATIONS	6-07-02	GLC	DJA
1	REVISED LINE ROUTING BASED UPON FIELD SURVEY	5-29-02	DMB	DJA

VALLEY ELECTRIC ASSOCIATION
PAHRUMP, NEVADA

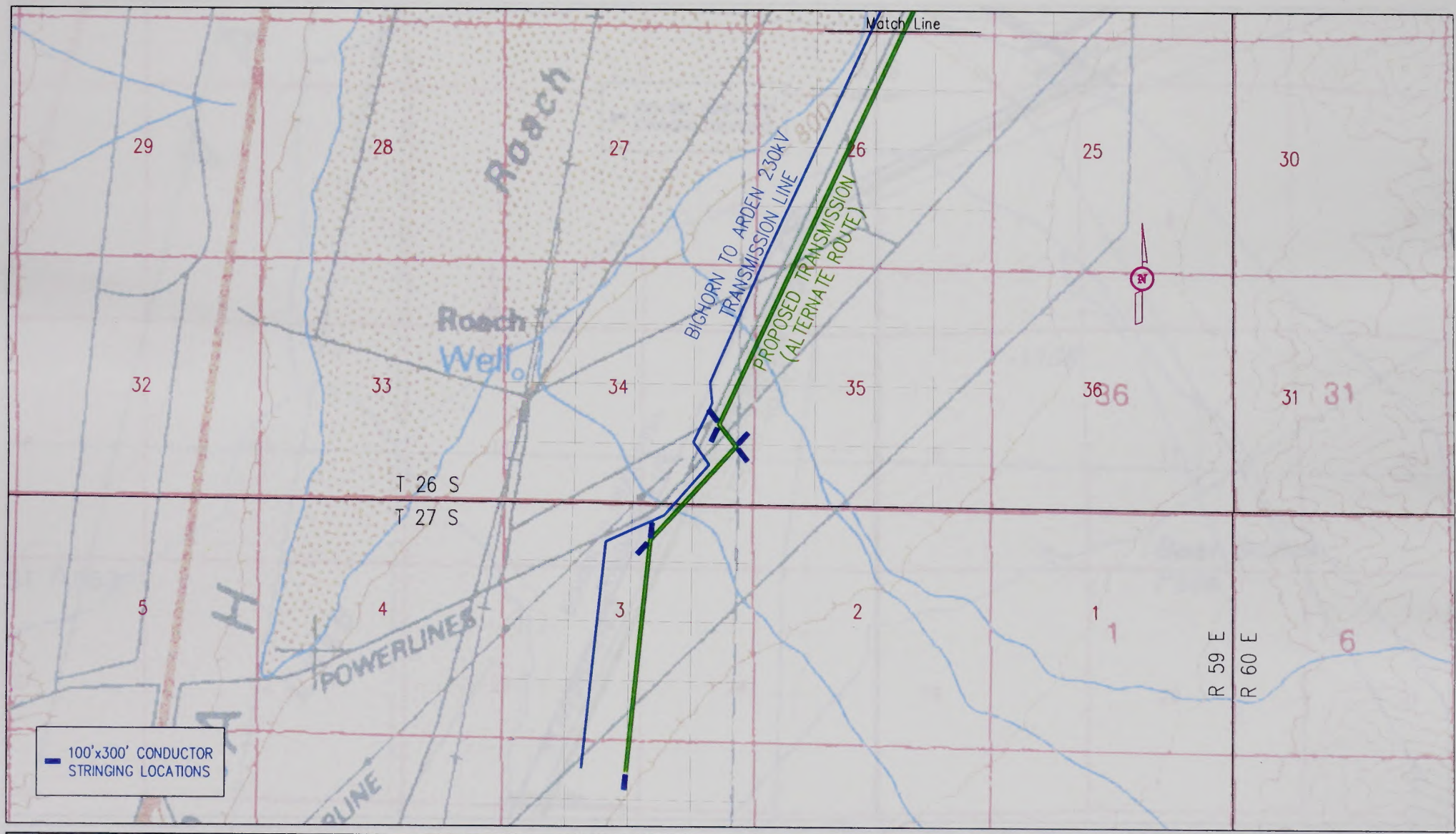
ENGINEERING RECORD		DATE
DRAWN	GLC	11-5-01
DESIGNED	DJA	11-1-01
CHECKED		
APPROVED		

DWG SCALE: 1"=2000' PLT SCALE: 1:1

IVANPAH TO MEAD
230kV TRANSMISSION PROJECT
Exhibit Map #8

FILE NO : 183M008 18-8-M008 REVISION NO : 2





ELECTRICAL CONSULTANTS, INC.

NO	REVISION	DATE	BY	APR

VALLEY ELECTRIC ASSOCIATION
PAHRUMP, NEVADA

ENGINEERING RECORD		DATE
DRAWN	CLC	8-29-02
DESIGNED	DJA	11-1-01
CHECKED		
APPROVED		

DWG SCALE: 1"=2000' PLT SCALE: 1:1

IVANPAH TO MEAD
230kV TRANSMISSION PROJECT
Exhibit Map #9 (Alternate Route)

FILE NO : 18BM009 18-B-M009 REVISION NO : 0





ELECTRICAL CONSULTANTS, INC.

NO	REVISION	DATE	BY	APR

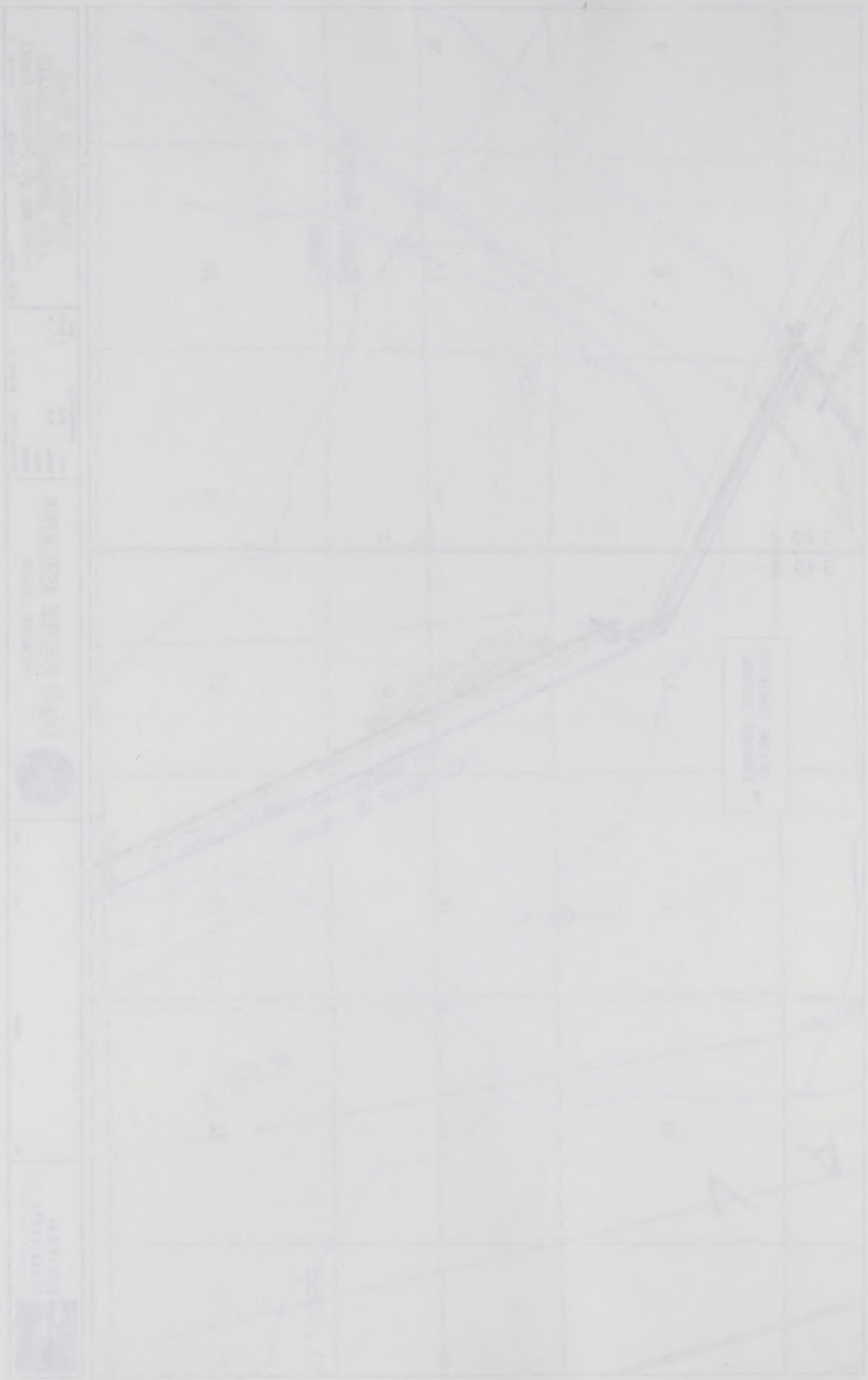
VALLEY ELECTRIC ASSOCIATION
PAHRUMP, NEVADA

ENGINEERING RECORD		DATE
DRAWN	CLC	8-29-02
DESIGNED	DJA	11-1-01
CHECKED		
APPROVED		

DWG SCALE: 1"=2000' PLT SCALE: 1:1

IVANPAH TO MEAD
230kV TRANSMISSION PROJECT
Exhibit Map #10 (Alternate Route)

FILE NO : 18EM010 18-8-M010 REVISION NO : 0



APPENDIX I
VRM CONTRAST RATING WORKSHEETS

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date 5/2002

District Las Vegas Field Office

Resource Area Ivanpah Valley

Activity (program) Power Plant/Transmission

SECTION A. PROJECT INFORMATION

1. Project Name: Ivanpah Energy Center

2. Key Observation Point: 1a

3. VRM Class: II

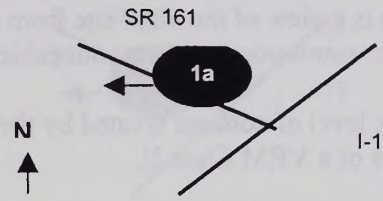
4. Location

Township: T25E

Range: R59E

Section: 4

5. Location Sketch



SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	LAND WATER	VEGETATION	STRUCTURES
FORM	3-Dimensional Foreground – flat terrain Background – prominent mountains, rugged	Foreground – relatively small, short Background – no vegetation	Foreground: fencing – linear Background: compressor station – square, indistinct; transmission line – vertical, indistinct
LINE	Horizontal, bold Butt edge – contrasting valley floor and mountains	Diffused	Foreground: fencing – straight, horizontal Background: compressor station – vertical/horizontal; transmission line – linear horizontal
COLOR	Foreground – greens, tans, light grays Background – tans, various shades of gray	Foreground – greens, light browns, and light grays Background – no vegetation	Foreground: fencing – dark green poles Background: compressor station – light, subtle tans; transmission line - gray
TEXTURE	Foreground – medium density Background – stark	Foreground – medium density, random Background – no vegetation	Foreground: fencing – continuous, directional Background: compressor station – subtle; transmission line – subtle

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	LAND WATER	VEGETATION	STRUCTURES
FORM	3-Dimensional Foreground – flat terrain Background – prominent mountains, rugged	Foreground – relatively small, short Background – no vegetation	Plant facility – not visible Transmission lines over mountain – vertical, definite
LINE	Horizontal, bold Butt edge – contrasting valley floor and mountains	Diffused	Transmission lines over mountain – linear, vertical
COLOR	Foreground – greens, tans, light grays Background – tans, various shades of gray	Foreground – greens, light browns, and light grays Background – no vegetation	Transmission lines over mountain – brown, warm color
TEXTURE	Foreground – medium density Background – stark	Foreground – medium density, random Background – no vegetation	Transmission lines over mountain – contrasty, coarse

SECTION D. CONTRAST RATING ☐ SHORT TERM ☐ LONG TERM

1.

DEGREE OF CONTRAST	FEATURES: Land/Water Body				Vegetation				Structures			
	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None
Elements: Form				√				√			√	
Line				√				√			√	
Color				√				√			√	
Texture				√				√			√	

2. Does project design meet visual resource management objectives? X Yes No
(Explain on reverse side)

3. Additional mitigating measures recommended?
X Yes No
(Explain on reverse side)

Evaluator's Name: P. Roberts

Date: 5/2002

Comments from item 2

The objective of the VRM Class II is to retain the existing character of the landscape. Management activities may be seen, but not attract the attention of the casual observer.

KOP #1a is a view of the plant site from SR 161. The plant is not visible to viewers from this KOP, and while the Coreten transmission lines are noticeable, because of the distance, they do not attract the attention of the casual viewer.

The weak level of contrast created by the proposed plant facility and associated transmission lines from this KOP meet the objectives of a VRM Class II.

Additional Mitigating Measures (see item 3)

- Use of gray-painted structures could reduce visual contrast.
 Specifications for Gray-painted structures
 Company: Carboline
 Color #: 0729 (Medium Gray)
 Paint #: 8819
 Top Coat #: 8809 (Acrylic Aliphatic Polyurethane)
- Use of nonspecular conductor to reduce visual impacts.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date 5/2002

District Las Vegas Field Office

Resource Area Ivanpah Valley

Activity (program) Power Plant/Transmission

SECTION A. PROJECT INFORMATION

1. Project Name: Ivanpah Energy Center

2. Key Observation Point: 1b

3. VRM Class II

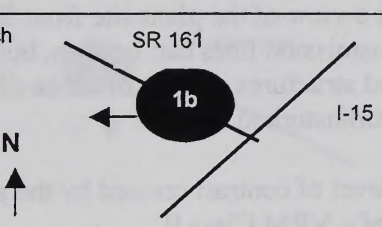
4. Location

Township: T25S

Range R59E

Section 4

5. Location Sketch



SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	LAND WATER	VEGETATION	STRUCTURES
FORM	3-Dimensional Foreground – flat terrain Background – prominent mountains, rugged	Foreground – relatively small, short Background – no vegetation	Foreground: fencing – linear Background: compressor station – square, indistinct; transmission line – vertical, indistinct
LINE	Horizontal, bold Butt edge – contrasting valley floor and mountains	Diffused	Foreground: fencing – straight, horizontal Background: compressor station – vertical/horizontal; transmission line – linear horizontal
COLOR	Foreground – greens, tans, light grays Background – tans, various shades of gray	Foreground – greens, light browns, and light grays Background – no vegetation	Foreground: fencing – dark green poles Background: compressor station – light, subtle tans; transmission line - gray
TEXTURE	Foreground – medium density Background – stark	Foreground – medium density, random Background – no vegetation	Foreground: fencing – continuous, directional Background: compressor station – subtle; transmission line – subtle

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	LAND WATER	VEGETATION	STRUCTURES
FORM	3-Dimensional Foreground – flat terrain Background – prominent mountains, rugged	Foreground – relatively small, short Background – no vegetation	Plant facility – not visible Transmission lines over mountain – vertical, indistinct
LINE	Horizontal, bold Butt edge – contrasting valley floor and mountains	Diffused	Transmission lines over mountain – linear, vertical
COLOR	Foreground – greens, tans, light grays Background – tans, various shades of gray	Foreground – greens, light browns, and light grays Background – no vegetation	Transmission lines over mountain – medium gray
TEXTURE	Foreground – medium density Background – stark	Foreground – medium density, random Background – no vegetation	Transmission lines over mountain – subtle, medium

SECTION D. CONTRAST RATING ☐ SHORT TERM ☐ LONG TERM

1. DEGREE OF CONTRAST

Elements	FEATURES: Land/Water Body				Vegetation				Structures			
	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None
Form				√				√			√	
Line				√				√			√	
Color				√				√			√	
Texture				√				√			√	

2. Does project design meet visual resource management objectives? X Yes No (Explain on reverse side)

3. Additional mitigating measures recommended? X Yes No (Explain on reverse side)

Evaluator's Name: P. Roberts

Date: 5/2002

Comments from item 2

The objective of the VRM Class II is to retain the existing character of the landscape. Management activities may be seen, but not attract the attention of the casual observer.

KOP #1a is a view of the plant site from SR 161. The plant facility is not visible to viewers from this KOP; the gray-painted transmission lines can be seen, but does not attract the attention of the casual observer. With the use of medium gray-painted structures and the distance of the view, the modification would create a weak contrast in a landscape previously undisturbed.

The weak level of contrast created by the proposed plant facility and associated transmission line from this KOP meets the objectives of a VRM Class II.

Additional Mitigating Measures (see item 3)

- Use of gray-painted structures to reduce visual contrast.
 Specifications for Gray-painted structures
 Company: Carboline
 Color #: 0729 (Medium Gray)
 Paint #: 8819
 Top Coat #: 8809 (Acrylic Aliphatic Polyurethane)
- Use of nonspecular conductor to reduce glare and reflection.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date 5/2002

District Las Vegas Field Office

Resource Area Ivanpah Valley

Activity (program) Power Plant/Transmission

SECTION A. PROJECT INFORMATION

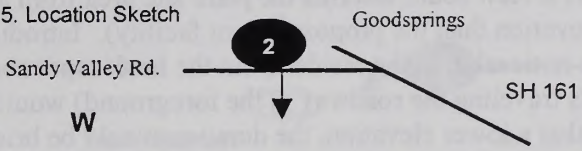
1. Project Name: Ivanpah Energy Center

2. Key Observation Point: 2

3. VRM Class II

4. Location
Township: T24S
Range: R58E
Section: 26

5. Location Sketch



SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	LAND WATER	VEGETATION	STRUCTURES
FORM	Flat, gentle rise and fall to hills and mountain backdrop.	Somewhat diverse, small, short	None
LINE	Diffused edge between valley floor and hills.	Diffused, simple	None
COLOR	Subtle greens, light browns. Tan to light brown hills. Gray mountain background.	Subtle greens, light browns	None
TEXTURE	Foreground – medium density, uneven Background – fine (hills)	Medium density, uneven	None

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	LAND WATER	VEGETATION	STRUCTURES
FORM	Flat, gentle rise and fall to hills and mountain backdrop.	Somewhat diverse, small, short	Plant – rectangular plane Plant stacks – vertical to landscape
LINE	Diffused edge between valley floor and hills.	Diffused, simple	Plant – geometric Plant stacks - vertical
COLOR	Subtle greens, light browns. Tan to light brown hills. Gray mountain background.	Subtle greens, light browns	Warm, brownish, mustard
TEXTURE	Foreground – medium density, uneven Background – fine (hills)	Medium density, uneven	Smooth, contrasty

SECTION D. CONTRAST RATING ☐ SHORT TERM ☐ LONG TERM

1. DEGREE OF CONTRAST

Elements	FEATURES: Land/Water Body				Vegetation				Structures			
	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None
Form				√				√			√	
Line				√				√			√	
Color				√				√		√		
Texture				√				√			√	

2. Does project design meet visual resource management objectives? Yes X No
(Explain on reverse side)

3. Additional mitigating measures recommended?
X Yes No
(Explain on reverse side)

Evaluator's Name: P. Roberts

Date: 5/2002

Comments from item 2

The objective of the VRM Class II is to retain the existing character of the landscape. Management activities may be seen, but not attract the attention of the casual observer.

KOP #2 is a view south towards the plant site area from a single residence approximately 3,600 ft. amsl (a few hundred higher elevation than the proposed plant facility). Introduction of the proposed facility from this key observation point would be noticeable to the resident, but the landscape modification would not dominate the view. The casual observer (motorists traveling the roadway in the foreground) would notice the modification, but since their views would be peripheral at a lower elevation, the duration would be brief.

The contrast evaluation resulted in a "weak" rating for the elements of form, line, and texture; the color element resulted in a "moderate" contrast rating. By applying the appropriate mitigation measure (see mitigation measure item #1 below) to reduce the color contrast level to a "weak" rating, the overall contrast rating from KOP #2 would be "weak" and meet the objective of a VRM Class II.

Additional Mitigating Measures (see item 3)

1. Use of colors on plant components that blend with the surrounding desert landscape.
2. Use of directional lighting or shielding devices to reduce glare; limited lighting use and placement of lighting only in areas where needed or required by regulation.
3. Contouring of disturbed surface areas following construction of the plant facility to closely match the surrounding area.

UNITED STATES
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VISUAL CONTRAST RATING WORKSHEET

Date	5/2002
District	Las Vegas Field Office
Resource Area	Ivanpah Valley
Activity (program)	Power Plant/Transmission

SECTION A. PROJECT INFORMATION

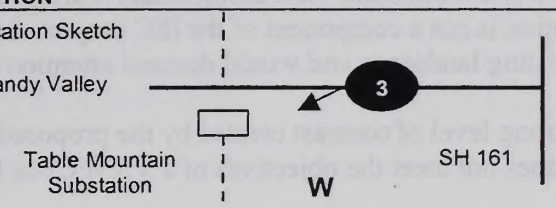
1. Project Name: Ivanpah Energy Center

2. Key Observation Point: 3 (Substation)

3. VRM Class: II

4. Location
Township: T24S
Range: R58E
Section: 34

5. Location Sketch



SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	LAND WATER	VEGETATION	STRUCTURES
FORM	2-Dimensional Foreground – gently rolling terrain Background – steep mountains	Regular, small	Transmission line - vertical
LINE	Butt edge – valley terrain to mountain base Raodway – linear, undulating, slight curve	Diffused	Transmission line – horizontal, linear
COLOR	Foreground – subtle browns, tans, and greens Roadway – grays, white striped, white stone ROW	Foreground – subtle browns and greens Background – no vegetation	Transmission line – brown, rusty structures
TEXTURE	Foreground – medium density, uneven Background – fine (mountains) Roadway – smooth	Foreground – medium, uneven density Background – no vegetation	Transmission line – distinct, coarse

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	LAND WATER	VEGETATION	STRUCTURES
FORM	2-Dimensional Foreground – gently rolling terrain Background – steep mountains	Regular, small	Substation: Prominent, horizontal
LINE	Butt edge – valley terrain to mountain base Roadway – linear, undulating, slight curve	Diffused	Substation: Horizontal
COLOR	Foreground – subtle browns, tans, and greens Roadway – grays, white striped, white stone ROW	Foreground – subtle browns and greens Background – no vegetation	Substation: fencing – bright, reflective; buildings – some white, some brownish yellow.
TEXTURE	Foreground – medium density, uneven Background – fine (mountains) Roadway - smooth	Foreground – medium, uneven density Background – no vegetation	Substation: contrasty

SECTION D. CONTRAST RATING ☐ SHORT TERM ☐ LONG TERM

1.

	FEATURES											
	Land/Water Body				Vegetation				Structures			
DEGREE OF CONTRAST	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None
Elements: Form				√				√	√			
Line				√				√		√		
Color				√				√	√			
Texture				√				√	√			

2. Does project design meet visual resource management objectives? Yes **X** No
(Explain on reverse side)

3. Additional mitigating measures recommended?
X Yes No
(Explain on reverse side)

Evaluator's Name: P. Roberts
Date: 5/2002

SECTION D. (CONTINUED)

Comments from item 2

The objective of the VRM Class II is to retain the existing character of the landscape. Management activities may be seen, but not attract the attention of the casual viewer.

KOP #3 is a westbound view along Sandy Valley Road of the substation and transmission line interconnection. The substation is not a component of the IEC project. Introduction of the substation would create a strong visual contrast to the existing landscape and would demand attention of motorists traveling westbound on Sandy Valley Road.

The strong level of contrast created by the proposed substation and associated transmission line interconnection from this KOP does not meet the objectives of a VRM Class II.

Additional Mitigating Measures (see item 3)

- Fence the substation facility with materials and colors that blend with the surrounding landscape.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date	5/2002
District	Las Vegas Field Office
Resource Area	Ivanpah Valley
Activity (program)	Power Plant/Transmission

SECTION A. PROJECT INFORMATION

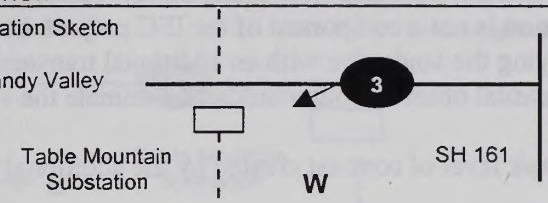
1. Project Name: Ivanpah Energy Center

2. Key Observation Point: 3 (Transmission Line)

3. VRM Class: II

4. Location
Township: T24S
Range: R58E
Section: 34

5. Location Sketch



SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	LAND WATER	VEGETATION	STRUCTURES
FORM	2-Dimensional Foreground – gently rolling terrain Background – steep mountains	Regular, small	Transmission line - vertical
LINE	Butt edge – valley terrain to mountain base Raodway – linear, undulating, slight curve	Diffused	Transmission line – horizontal, linear
COLOR	Foreground – subtle browns, tans, and greens Roadway – grays, white striped, white stone ROW	Foreground – subtle browns and greens Background – no vegetation	Transmission line – brown, rusty structures
TEXTURE	Foreground – medium density, uneven Background – fine (mountains) Roadway – smooth	Foreground – medium, uneven density Background – no vegetation	Transmission line – distinct, coarse

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	LAND WATER	VEGETATION	STRUCTURES
FORM	2-Dimensional Foreground – gently rolling terrain Background – steep mountains	Regular, small	Transmission Line: vertical
LINE	Butt edge – valley terrain to mountain base Roadway – linear, undulating, slight curve	Diffused	Transmission Line: Horizontal, linear
COLOR	Foreground – subtle browns, tans, and greens Roadway – grays, white striped, white stone ROW	Foreground – subtle browns and greens Background – no vegetation	Transmission Line – gray
TEXTURE	Foreground – medium density, uneven Background – fine (mountains) Roadway - smooth	Foreground – medium, uneven density Background – no vegetation	Transmission Line: somewhat subtle

SECTION D. CONTRAST RATING ☐ SHORT TERM ☐ LONG TERM

1. DEGREE OF CONTRAST

Elements	FEATURES: Land/Water Body				Vegetation				Structures			
	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None
Form				√				√			√	
Line				√				√			√	
Color				√				√			√	
Texture				√				√			√	

2. Does project design meet visual resource management objectives? X Yes No
(Explain on reverse side)

3. Additional mitigating measures recommended?
X Yes No
(Explain on reverse side)

Evaluator's Name: P. Roberts
Date: 5/2002

Comments from item 2

The objective of the VRM Class II is to retain the existing character of the landscape. Management activities may be seen, but not attract the attention of the casual viewer.

KOP #3 is a westbound view along Sandy Valley Road of the substation and transmission line interconnection. The substation is not a component of the IEC project, however, the transmission line interconnection is part of this project. Modifying the landscape with an additional transmission line parallel to the existing transmission line would be noticeable to the casual observer, but would not dominate the view for motorists traveling westbound on Sandy Valley Road.

The weak level of contrast created by the additional transmission line from this KOP meets the objectives of a VRM Class II.

Additional Mitigating Measures (see item 3)

- Parallel proposed transmission line interconnections in a pole-for-pole configuration with the existing transmission line.
- Use medium gray-painted structures to reduce visual contrast.
 Specifications for Gray-painted structures
 Company: Carboline
 Color #: 0729 (Medium Gray)
 Paint #: 8819
 Top Coat #: 8809 (Acrylic Aliphatic Polyurethane)
- Use of nonspecular conductor to minimize glare and reflection.

UNITED STATES
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BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date 5/2002

District Las Vegas Field Office

Resource Area Ivanpah Valley

Activity (program) Power Plant/Transmission

SECTION A. PROJECT INFORMATION

1. Project Name: Ivanpah Energy Center

2. Key Observation Point: 4 (Substation)

3. VRM Class: II

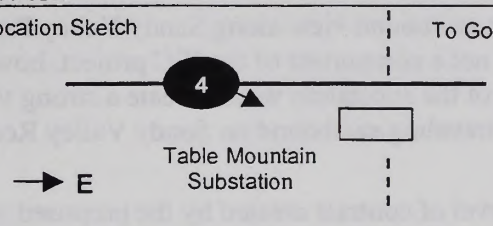
4. Location

Township: T24S

Range: R58E

Section: 34

5. Location Sketch



SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	LAND WATER	VEGETATION	STRUCTURES
FORM	Foreground: Roadway – linear, then curving, divides foreground, gently rolling terrain to foreground hills Background – steep mountains	Foreground: small irregular	Transmission line – vertical, definite
LINE	Foreground – vertical roadway alignment, parallel edges Background – horizontal mountains	Diffused	Transmission line – linear, horizontal
COLOR	Foreground: roadway – gray, white-striped, white stone ROW Background: shades of grays and light browns	Foreground: greens, light browns Background: mountains – no vegetation	Transmission line – rusty, brown
TEXTURE	Foreground: medium density, uneven Background: stark mountains	Foreground: Medium density, uneven foreground hill – fine texture, sparse density Background: no vegetation	Transmission line – coarse

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	LAND WATER	VEGETATION	STRUCTURES
FORM	Foreground: Roadway – linear, then curving, divides foreground, gently rolling terrain to foreground hills Background – steep mountains	Foreground: small irregular	Substation: Prominent, horizontal
LINE	Foreground – vertical roadway alignment, parallel edges Background – horizontal mountains	Diffused	Substation: Horizontal
COLOR	Foreground: roadway – gray, white-striped, white stone ROW Background: shades of grays and light browns	Foreground: greens, light browns Background: mountains – no vegetation	Substation: fencing – bright, reflective; buildings – some white, some brownish yellow.
TEXTURE	Foreground: medium density, uneven Background: stark mountains	Foreground: Medium density, uneven foreground hill – fine texture, sparse density Background: no vegetation	Substation: contrasty

SECTION D. CONTRAST RATING ☐ SHORT TERM ☐ LONG TERM

1. DEGREE OF CONTRAST

Elements	FEATURES: Land/Water Body				Vegetation				Structures			
	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None
Form				√				√	√			
Line				√				√	√			
Color				√				√	√			
Texture				√				√	√			

2. Does project design meet visual resource management objectives? Yes X No (Explain on reverse side)

3. Additional mitigating measures recommended? X Yes No (Explain on reverse side)

Evaluator's Name: P. Roberts

Date: 5/2002

Comments from item 2

The objective of the VRM Class II is to retain the existing character of the landscape. Management activities may be seen, but not attract the attention of the casual viewer.

KOP #4 is an eastbound view along Sandy Valley Road of the substation and transmission line interconnection. The substation is not a component of the IEC project, however, the transmission line interconnection is part of this project. Introduction of the substation would create a strong visual contrast to the existing landscape and would demand attention of motorists traveling eastbound on Sandy Valley Road.

The strong level of contrast created by the proposed substation and associated transmission line interconnection from this KOP does not meet the objectives of a VRM Class II.

Additional Mitigating Measures (see item 3)

- Fence the substation facility with materials and colors that blend with the surrounding landscape.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date 5/2002

District Las Vegas Field Office

Resource Area Ivanpah Valley

Activity (program) Power Plant/Transmission

SECTION A. PROJECT INFORMATION

1. Project Name: Ivanpah Energy Center

2. Key Observation Point: 4 (Transmission Line)

3. VRM Class: II

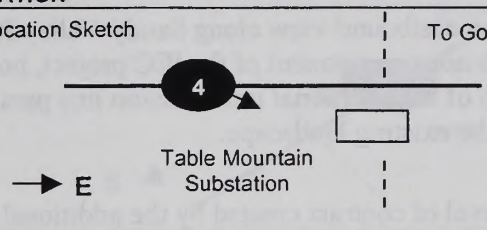
4. Location

Township: T24S

Range: R58E

Section: 34

5. Location Sketch



SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	LAND WATER	VEGETATION	STRUCTURES
FORM	Foreground: Roadway – linear, then curving, divides foreground, gently rolling terrain to foreground hills Background – steep mountains	Foreground: small irregular	Transmission line – vertical, definite
LINE	Foreground – vertical roadway alignment, parallel edges Background – horizontal mountains	Diffused	Transmission line – linear, horizontal
COLOR	Foreground: roadway – gray, white-striped, white stone ROW Background: shades of grays and light browns	Foreground: greens, light browns Background: mountains – no vegetation	Transmission line – rusty, brown
TEXTURE	Foreground: medium density, uneven Background: stark mountains	Foreground: Medium density, uneven foreground hill – fine texture, sparse density Background: no vegetation	Transmission line – coarse

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	LAND WATER	VEGETATION	STRUCTURES
FORM	Foreground: Roadway – linear, then curving, divides foreground, gently rolling terrain to foreground hills Background – steep mountains	Foreground: small irregular	Transmission Line: vertical
LINE	Foreground – vertical roadway alignment, parallel edges Background – horizontal mountains	Diffused	Transmission Line: Horizontal, linear
COLOR	Foreground: roadway – gray, white-striped, white stone ROW Background: shades of grays and light browns	Foreground: greens, light browns Background: mountains – no vegetation	Transmission Line – gray
TEXTURE	Foreground: medium density, uneven Background: stark mountains	Foreground: Medium density, uneven foreground hill – fine texture, sparse density Background: no vegetation	Transmission Line: somewhat subtle

SECTION D. CONTRAST RATING ☐ SHORT TERM ☐ LONG TERM

1. DEGREE OF CONTRAST		FEATURES: Land/Water Body				Vegetation				Structures			
		Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None
Elements	Form				√				√			√	
	Line				√				√			√	
	Color				√				√			√	
	Texture				√				√			√	

2. Does project design meet visual resource management objectives? X Yes No (Explain on reverse side)

3. Additional mitigating measures recommended? X Yes No (Explain on reverse side)

Evaluator's Name: P. Roberts

Date: 5/2002

Comments from item 2

The objective of the VRM Class II is to retain the existing character of the landscape. Management activities may be seen, but not attract the attention of the casual viewer.

KOP #4 is an eastbound view along Sandy Valley Road of the substation and transmission line interconnection. The substation is not a component of the IEC project, however, the transmission line interconnection is part of this project. Introduction of the additional transmission line parallel to the existing transmission line would create a weak visual contrast to the existing landscape.

The weak level of contrast created by the additional transmission line from this KOP meets the objectives of a VRM Class II.

Additional Mitigating Measures (see item 3)

- Parallel proposed transmission line interconnections in a pole-for-pole configuration with the existing transmission line.
- Use medium gray-painted structures to reduce visual contrast.
 Specifications for Gray-painted structures
 Company: Carboline
 Color #: 0729 (Medium Gray)
 Paint #: 8819
 Top Coat #: 8809 (Acrylic Aliphatic Polyurethane)
- Use of nonspecular conductor to minimize glare and reflection

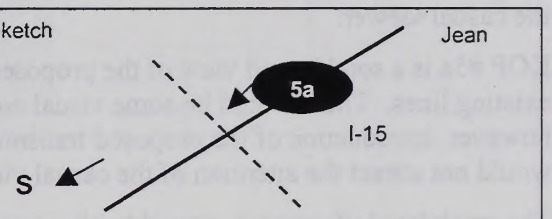
UNITED STATES
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VISUAL CONTRAST RATING WORKSHEET

Date 5/2002
District Las Vegas Field Office
Resource Area Ivanpah Valley
Activity (program) Power Plant/Transmission

SECTION A. PROJECT INFORMATION

1. Project Name: Ivanpah Energy Center
2. Key Observation Point: 5a
3. VRM Class: III
4. Location
Township: T25S
Range: R59E
Section: 27
5. Location Sketch



SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	LAND WATER	VEGETATION	STRUCTURES
FORM	3-Dimensional Foreground – flat terrain with prominent, jagged hills Background – Dominant mountains	Foreground – irregular Background – no vegetation	Transmission lines – vertical, linear Highway – linear, intersecting horizontal view.
LINE	Digitate edge – alluvial fans interlocking with mountains in background.	Foreground – diffused Background – no vegetation	Transmission lines – vertical dominance, horizontal Highway – straight, perpendicular to horizontal transmission line crossing
COLOR	Foreground – primarily tans, subtle greens, light browns Background – various shades of gray, light browns	Foreground – golden browns, subtle greens Background – no vegetation	Transmission lines – gray-painted structures and brown, rusty structures. Highway – gray surface, white striping
TEXTURE	Foreground – medium Background - stark	Foreground – medium density, uneven Background – no vegetation	Transmission lines – coarse Highway – smooth, continuous

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	LAND WATER	VEGETATION	STRUCTURES
FORM	3-Dimensional Foreground – flat terrain with prominent, jagged hills Background – Dominant mountains	Foreground – irregular Background – no vegetation	Transmission line – vertical, linear
LINE	Digitate edge – alluvial fans interlocking with mountains in background.	Foreground – diffused Background – no vegetation	Transmission line – vertical, horizontal
COLOR	Foreground – primarily tans, subtle greens, light browns Background – various shades of gray, light browns	Foreground – golden browns, subtle greens Background – no vegetation	Transmission line – rusty, brown
TEXTURE	Foreground – medium Background - stark	Foreground – medium density, uneven Background – no vegetation	Transmission line - coarse

SECTION D. CONTRAST RATING ☐ SHORT TERM ☐ LONG TERM

1. DEGREE OF CONTRAST		FEATURES: Land/Water Body				Vegetation				Structures			
		Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None
Elements	Form				√				√			√	
	Line				√				√			√	
	Color				√				√		√		
	Texture				√				√			√	

2. Does project design meet visual resource management objectives? X Yes No
(Explain on reverse side)

3. Additional mitigating measures recommended?
X Yes No
(Explain on reverse side)

Evaluator's Name: P. Roberts
Date: 5/2002

Comments from item 2

The objective of the VRM Class III is to partially retain the existing character of the landscape by allowing a moderate level of change. Management activities may alter the landscape, but not to the extent that they attract or focus attention of the casual viewer.

KOP #5a is a southbound view of the proposed transmission line crossing I-15. The transmission line would parallel two existing lines. There would be some visual contrast with the Coreten structures alongside the gray-painted structures; however, introduction of the proposed transmission line would create a weak visual contrast to the existing landscape and would not attract the attention of the casual viewer (motorists traveling southbound on I-15).

The weak level of contrast created by the proposed transmission line from this KOP would meet the objectives of a VRM Class III.

Additional Mitigating Measures (see item 3)

- Parallel proposed transmission line in a pole-for-pole configuration with the existing lines.
- Use of gray-painted structures to reduce visual contrast.
 Specifications for Gray-painted structures
 Company: Carboline
 Color #: 0729 (Medium Gray)
 Paint #: 8819
 Top Coat #: 8809 (Acrylic Aliphatic Polyurethane)
- Use of nonspecular conductor to minimize glare and reflection.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date 5/2002

District Las Vegas Field Office

Resource Area Ivanpah Valley

Activity (program) Power Plant/Transmission

SECTION A. PROJECT INFORMATION

1. Project Name: Ivanpah Energy Center

2. Key Observation Point: 5b

3. VRM Class: III

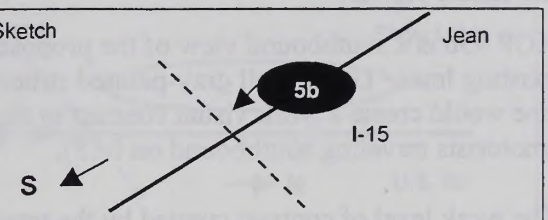
4. Location

Township: T25S

Range: R59E

Section: 27

5. Location Sketch



SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	LAND WATER	VEGETATION	STRUCTURES
FORM	3-Dimensional Foreground – flat terrain marked with jagged hills Background – Dominant mountains	Foreground – irregular Background – no vegetation	Transmission lines – vertical, linear Highway – linear, intersecting horizontal view.
LINE	Digitate edge – alluvial fans interlocking with mountains in background.	Foreground – diffused Background – no vegetation	Transmission lines – vertical dominance, horizontal Highway – straight, perpendicular to horizontal transmission line crossing
COLOR	Foreground – primarily tans, subtle greens, light browns Background – various shades of gray, light browns	Foreground – golden browns, subtle greens Background – no vegetation	Transmission lines – gray-painted structures and brown, rusty structures. Highway – gray surface, white striping
TEXTURE	Foreground – medium Background – stark	Foreground – medium density, uneven Background – no vegetation	Transmission lines – coarse Highway – smooth, continuous

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	LAND WATER	VEGETATION	STRUCTURES
FORM	3-Dimensional Foreground – flat terrain marked with jagged hills Background – Dominant mountains	Foreground – irregular Background – no vegetation	Transmission line – vertical, linear
LINE	Digitate edge – alluvial fans interlocking with mountains in background.	Foreground – diffused Background – no vegetation	Transmission line – vertical, horizontal
COLOR	Foreground – primarily tans, subtle greens, light browns Background – various shades of gray, light browns	Foreground – golden browns, subtle greens Background – no vegetation	Transmission line – gray
TEXTURE	Foreground – medium Background - stark	Foreground – medium density, uneven Background – no vegetation	Transmission line - coarse

SECTION D. CONTRAST RATING ☐ SHORT TERM ☐ LONG TERM

1. DEGREE OF CONTRAST

Elements	FEATURES: Land/Water Body				Vegetation				Structures			
	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None
Form				√				√			√	
Line				√				√			√	
Color				√				√			√	
Texture				√				√			√	

2. Does project design meet visual resource management objectives? X Yes No
(Explain on reverse side)

3. Additional mitigating measures recommended?
X Yes No
(Explain on reverse side)

Evaluator's Name: P. Roberts

Date: 5/2002

Comments from item 2

The objective of the VRM Class III is to partially retain the existing character of the landscape by allowing a moderate level of change. Management activities may alter the landscape, but not to the extent that they attract or focus attention of the casual viewer.

KOP #5b is a southbound view of the proposed transmission line crossing I-15. The transmission line would parallel two existing lines. Use of dull gray-painted structures would reduce any visual contrast. The introduction of the transmission line would create a weak visual contrast to the existing landscape and would not attract the attention of the casual viewer (motorists traveling southbound on I-15).

The weak level of contrast created by the proposed transmission line from this KOP would meet the objectives of a VRM Class III.

Additional Mitigating Measures (see item 3)

- Parallel proposed transmission line in a pole-for-pole configuration with the existing lines.
- Use of gray-painted structures to reduce visual contrast.
 Specifications for Gray-painted structures
 Company: Carboline
 Color #: 0729 (Medium Gray)
 Paint #: 8819
 Top Coat #: 8809 (Acrylic Aliphatic Polyurethane)
- Use of nonspecular conductor to minimize glare and reflection.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date 5/2002

District Las Vegas Field Office

Resource Area Eldorado Valley

Activity (program) Power Plant/Transmission

SECTION A. PROJECT INFORMATION

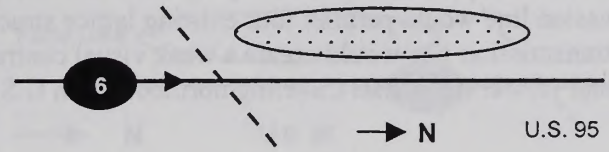
1. Project Name: Ivanpah Energy Center

2. Key Observation Point: 6

3. VRM Class: No VRM Class/Private Land

4. Location
Township: T24S
Range: R63E
Section: 22

5. Location Sketch



SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	LAND WATER	VEGETATION	STRUCTURES
FORM	3-Dimensional Foreground – flat, rise in distance to prominent mountain background	Small, short	Transmission lines – vertical prominent Highway – linear, rising in distance
LINE	Horizontal Butt edge between valley floor and mountains to the east and west of linear highway that divides horizontal view.	Diffused	Transmission lines – horizontal, slightly diagonal Highway – perpendicular to the transmission line crossing
COLOR	Foreground – light browns, subtle greens Background – light grays	Subtle greens, soft browns	Transmission lines – light gray Highway – gray, white stripes
TEXTURE	Foreground – coarse Background – stark mountains	Sparse to the west, uneven to the east	Transmission lines – coarse Highway - smooth

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	LAND WATER	VEGETATION	STRUCTURES
FORM	3-Dimensional Foreground – flat, rise in distance to prominent mountain background	Small, short	Transmission line - vertical
LINE	Horizontal Butt edge between valley floor and mountains to the east and west of linear highway that divides horizontal view.	Diffused	Transmission line – linear, horizontal, slightly diagonal
COLOR	Foreground – light browns, subtle greens Background – light grays	Subtle greens, soft browns	Transmission line – gray
TEXTURE	Foreground – coarse Background – stark mountains	Sparse to the west, uneven to the east	Transmission line - coarse

SECTION D. CONTRAST RATING ☐ SHORT TERM ☐ LONG TERM

1. DEGREE OF CONTRAST		FEATURES: Land/Water Body				Vegetation				Structures			
		Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None
Elements	Form				√				√			√	
	Line				√				√			√	
	Color				√				√			√	
	Texture				√				√			√	

2. Does project design meet visual resource management objectives? Yes No
(Explain on reverse side)
Not applicable

3. Additional mitigating measures recommended?
X Yes No
(Explain on reverse side)

Evaluator's Name: P. Roberts
Date: 5/2002

Comments from item 2

This KOP is located on private land and is not subject to BLM VRM guidelines. However, to be consistent, VRM guildelines were applied to all lands within the project area.

KOP #6 is a northbound view of the proposed transmission line crossing U.S. 95 south of the dry lakebed. The transmission line would parallel four existing lattice structures lines and one self-weathering structure line. Introduction of the transmission line would create a weak visual contrast to the existing landscape and would not attract the attention of the casual viewer (motorists traveling northbound on U.S. 95).

Additional Mitigating Measures (see item 3)

- Parallel proposed transmission line in a pole-for-pole configuration with the existing lines.
- Use of nonspecular conductor to minimize glare and reflection.
- Use of gray-painted structures to reduce visual contrast.

 Specifications for Gray-painted structures

 Company: Carboline
 Color #: 0729 (Medium Gray)
 Paint #: 8819
 Top Coat #: 8809 (Acrylic Aliphatic Polyurethane)

UNITED STATES
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VISUAL CONTRAST RATING WORKSHEET

Date	5/2002
District	Las Vegas Field Office
Resource Area	Eldorado Valley
Activity (program)	Power Plant/Transmission

SECTION A. PROJECT INFORMATION

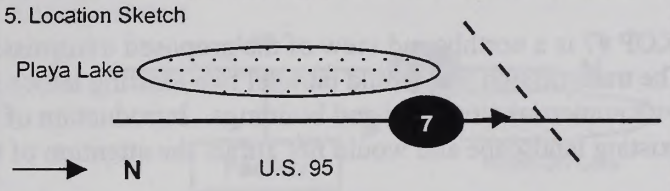
1. Project Name: Ivanpah Energy Center

2. Key Observation Point: 7

3. VRM Class: No VRM Class/Private Land

4. Location
Township: T23S
Range: R63E
Section: 35

5. Location Sketch



SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	LAND WATER	VEGETATION	STRUCTURES
FORM	3-Dimensional Flat valley floor rising to prominent mountains in the background.	Short, small	Transmission Lines – vertical Buildings – horizontal, rectangular Highway – linear, slightly curving in distance
LINE	Diffused edge from valley floor to mountain backdrop.	Diffused	Transmission Lines – vertical, horizontal with slight diagonal Buildings – horizontal Highway – straight, curving in distance.
COLOR	Foreground – greens, light browns Background – various shades of grays	Varying shades of green and light browns.	Transmission Lines – gray structures Buildings – bright white Highway – gray, white stripes
TEXTURE	Foreground – medium Background – stark mountains	Foreground – uneven, medium density Background – no vegetation	Transmission Lines – coarse Buildings – contrasts texture of landforms Highway - smooth

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	LAND WATER	VEGETATION	STRUCTURES
FORM	3-Dimensional Flat valley floor rising to prominent mountains in the background.	Short, small	Transmission line - vertical
LINE	Diffused edge from valley floor to mountain backdrop.	Diffused	Transmission line – linear, horizontal with slight diagonal
COLOR	Foreground – greens, light browns Background – various shades of grays	Varying shades of green and light browns.	Transmission line – gray structures
TEXTURE	Foreground – medium Background – stark mountains	Foreground – uneven, medium density Background – no vegetation	Transmission line - coarse

SECTION D. CONTRAST RATING ☐ SHORT TERM ☐ LONG TERM

1. DEGREE OF CONTRAST		FEATURES: Land/Water Body				Vegetation				Structures			
		Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None
Elements	Form				√				√			√	
	Line				√				√			√	
	Color				√				√			√	
	Texture				√				√			√	

2. Does project design meet visual resource management objectives? Yes No
(Explain on reverse side)
Not applicable

3. Additional mitigating measures recommended?
X Yes No
(Explain on reverse side)

Evaluator's Name: P. Roberts
Date: 5/2002

Comments from item 2

This KOP is located on private land and is not subject to BLM VRM guidelines. However, to be consistent, VRM guidelines were applied to all lands within the project area.

KOP #7 is a northbound view of the proposed transmission line alternative crossing U.S. 95 north of the dry lakebed. The transmission line would parallel two existing lattice structures lines. The view shed has been previously modified with numerous structures and buildings. Introduction of the transmission line would create a weak visual contrast to the existing landscape and would not attract the attention of the casual viewer (motorists traveling northbound on U.S. 95).

Additional Mitigating Measures (see item 3)

- Parallel proposed transmission line in a pole-for-pole configuration with the existing lines.
- Use of nonspecular conductor to minimize glare and reflection.
- Use of gray-painted structures to reduce visual contrast.

 Specifications for Gray-painted structures

 Company: Carboline
 Color #: 0729 (Medium Gray)
 Paint #: 8819
 Top Coat #: 8809 (Acrylic Aliphatic Polyurethane)

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VISUAL CONTRAST RATING WORKSHEET

Date	8/2002
District	Las Vegas Field Office
Resource Area	Ivanpah Valley
Activity (program)	Power Plant/Transmission

SECTION A. PROJECT INFORMATION

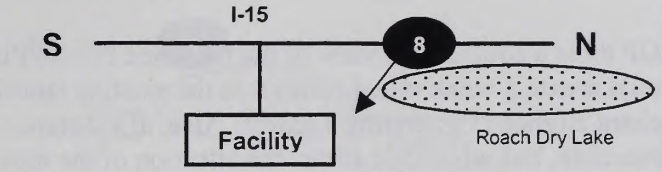
1. Project Name: Ivanpah Energy Center

2. Key Observation Point: 8

3. VRM Class: III

4. Location
Township: T26S
Range: R59E
Section: 32

5. Location Sketch



SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	LAND WATER	VEGETATION	STRUCTURES
FORM	3-Dimensional Flat valley floor rising to prominent mountains in the background.	Simple, short, few	Rectangular, vertical structure in distance Vertical structures in foreground
LINE	Digitate – between valley and mountains	Diffused	Horizontal structure Linear vertical structures in foreground
COLOR	Light tans/browns, and grays	Subtle greens, light browns, and tans	Structures – tans/light tans, bright Foreground structures- light to medium brown
TEXTURE	Fine to medium	Even/random	Coarse

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	LAND WATER	VEGETATION	STRUCTURES
FORM	3-Dimensional Flat valley floor rising to prominent mountains in the background.	Simple, few, small	Rectangular, horizontal structure
LINE	Digitate – between valley and mountains.	Diffused, irregular	Straight, horizontal
COLOR	Light tans/browns, and grays	Subtle greens, browns, and tans	Warm, brownish, mustard, stacks – light white
TEXTURE	Fine to medium	Sparse and scattered	Matte, somewhat subtle

SECTION D. CONTRAST RATING ☐ SHORT TERM ☐ LONG TERM

1. DEGREE OF CONTRAST

Elements	FEATURES: Land/Water Body				Vegetation				Structures			
	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None
Form				√				√			√	
Line				√				√			√	
Color				√				√			√	
Texture				√				√			√	

2. Does project design meet visual resource management objectives? X Yes No
(Explain on reverse side)

3. Additional mitigating measures recommended?
X Yes No
(Explain on reverse side)

Evaluator's Name: P. Roberts
Date: 8/2002

Comments from item 2

The objective of the VRM Class III is to partially retain the existing character of the landscape by allowing a moderate level of change. Management activities may alter the landscape, but not to the extent that they attract or focus attention of the casual viewer.

KOP #8 is a southbound view of the proposed Primm Plant Site from I-15. The introduction of the new plant facility would create a weak visual contrast to the existing landscape, which has been previously modified with the existing Reliant Bighorn Generating Facility. Also, at a distance of approximately two to three miles, the new facility would be noticeable, but would not attract the attention of the motorist traveling southbound I-15.

The weak level of visual contrast created by the proposed plant facility from this KOP meets the objectives of a VRM Class III.

Additional Mitigating Measures (see item 3)

1. Use of colors on plant components that blend with the surrounding desert landscape.
2. Use of directional lighting or shielding devices to reduce glare; limited lighting use and placement of lighting only in areas where needed or required by regulation.
3. Contouring of disturbed surface areas following construction of the plant facility to closely match the surrounding area.

UNITED STATES
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VISUAL CONTRAST RATING WORKSHEET

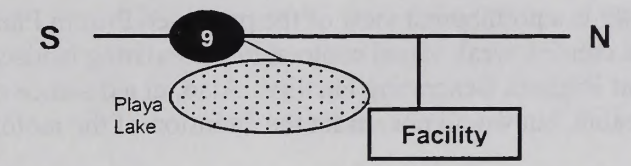
Date	8/2002
District	Las Vegas Field Office
Resource Area	Ivanpah Valley
Activity (program)	Power Plant/Transmission

SECTION A. PROJECT INFORMATION

1. Project Name: Ivanpah Energy Center
2. Key Observation Point: 9
3. VRM Class: III

4. Location
Township: T27S
Range: R59E
Section: 8

5. Location Sketch



SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	LAND WATER	VEGETATION	STRUCTURES
FORM	3-D, foreground – flat terrain; background –prominent mountains	Simple, short, few	Vertical/rectangular Horizontal
LINE	Digitate – between valley and mountains	Diffused	Dominant vertical and horizontal
COLOR	Light tans/light browns, grays	Subtle greens and tans	Reflective, bright, grays in background
TEXTURE	Fine to medium	Even/random	Coarse

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	LAND WATER	VEGETATION	STRUCTURES
FORM	3-D, foreground – flat terrain; background –prominent mountains	Simple, short, few	Rectangular, horizontal structure
LINE	Digitate – between valley and mountains	Diffused	Straight, horizontal
COLOR	Light tans/light browns, grays	Subtle greens and tans	Warm, brownish, mustard, stacks – light white
TEXTURE	Fine to medium	Even/random	Matte, somewhat subtle

SECTION D. CONTRAST RATING ☐ SHORT TERM ☐ LONG TERM

1. DEGREE OF CONTRAST

	FEATURES											
	Land/Water Body				Vegetation				Structures			
	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None
Elements: Form				√				√			√	
Line				√				√			√	
Color				√				√			√	
Texture				√				√			√	

2. Does project design meet visual resource management objectives? X Yes No
(Explain on reverse side)

3. Additional mitigating measures recommended?
X Yes No
(Explain on reverse side)

Evaluator's Name: P. Roberts
Date: 8/2002

Comments from item 2

The objective of the VRM Class III is to partially retain the existing character of the landscape by allowing a moderate level of change. Management activities may alter the landscape, but not to the extent that they attract or focus attention of the casual viewer.

KOP #9 is a northbound view of the proposed Primm Plant Site from I-15. The introduction of the new plant facility would create a weak visual contrast to the existing landscape, which has been previously modified with the existing Reliant Bighorn Generating Facility. Also, at a distance of approximately two to three miles, the new facility would be noticeable, but would not attract the attention of the motorist traveling southbound I-15.

The weak level of visual contrast created by the proposed plant facility from this KOP meets the objectives of a VRM Class III.

Additional Mitigating Measures (see item 3)

1. Use of colors on plant components that blend with the surrounding desert landscape.
2. Use of directional lighting or shielding devices to reduce glare; limited lighting use and placement of lighting only in areas where needed or required by regulation.
3. Contouring of disturbed surface areas following construction of the plant facility to closely match the surrounding area.

DATE RETURNED

(Continued on reverse)

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Ivanpah Energy Center :
draft environmental impact

DEMCO